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"Scire est nescire, nisi id me
Scire alius sciret."

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X-RAY THERAPEUTICS.

The Presidential Address, delivered on October 10th, 1906, at the opening of the Thirty-third Session of the Bristol Medico-Chirurgical Society.

BY

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My first duty is to return you my best thanks for the honour that you have done me in electing me your President for the ensuing year, an honour that is perhaps the highest a medical man can hope to attain in this city. Once again your choice of President has fallen on one of the rank and file of the profession, for although it has been my pride and privilege to have been connected with the staff of the Infirmary in a subordinate position for the last few years, still all my medical career has been passed as a general practitioner. As such I should like to express my gratitude to this Society for help I have received in my professional work. In these days of increased knowledge and great activity in medical research it becomes increasingly difficult for the man engaged in the arduous work of general practice to keep himself at all *au fait*

with recent medical thought. Take, for example, the various "ostomies" and "ectomies" of modern surgery, also the bewildering vocabulary that has come into vogue in connection with diseases of the blood—toxins, antitoxins, etc. What an assistance it is to a man who has not the good fortune to be attached to a large hospital, where all these things are, so to say, in the air, to come to our meetings and hear all the latest ideas on these and kindred subjects brought forward and discussed. Speaking for myself, I have found these meetings of the greatest service to me, and I cannot help thinking that many of my brother practitioners, though they may be handicapped by having evening professional engagements, are neglecting their best interests in not making more strenuous efforts to attend the meetings of this Society.

It so happens that this year of grace 1906 is the thirtieth anniversary of my entry into medical practice, and it cannot be but that under the circumstances one's thoughts should be somewhat retrospective. It seems to me that this period of thirty years is one of the most, if not *the* most, momentous in medical history, for it is hardly too much to say that during this time, thanks to the epoch-making researches of Lister, the whole of medical thought has been revolutionised. It is only by looking back and trying to remember the state of medical science at the time when I first began my medical studies that one realises the enormous advances that have been made in every branch of medicine during the last three decades. This advance is perhaps most marked in surgery. Contrast the surgical procedures of thirty years ago with now. Then one day a week, or at most two, were sufficient for the surgical operations of a large hospital; now several operating theatres are required in a well-equipped hospital, these being in constant use every day of the week. Then again, the whole of abdominal surgery as we know it at the present day has been worked out; and we in Bristol ever remember with pride that one of the pioneers in this great work did his work here in our midst, and that it is largely owing to the labours of Greig Smith, whose death in the prime of his manhood we still continually deplore, that abdominal surgery stands where it does to-day.

But if the advance in surgery has been so great, the advance in medicine, though perhaps not so apparent to the proverbial man in the street, has been equally great, and this too is due to the revolution in thought caused by Lister's discoveries. His theory of "germs" naturally led observers to try and demonstrate such germs, one of the earliest discoveries being that of the discovery of the tubercle bacillus by Koch, since which date one may say that the whole modern science of bacteriology has arisen, and has entirely altered the conception of disease.

Long before this time attempts had been made to discover the parasitic cause of disease, and amongst the most notable of these attempts were those of the first President of our Society, Dr. Brittan, in conjunction with Dr. J. G. Swayne, who tried to discover the cause of cholera by microscopically examining the air of the Bristol Bridewell during the cholera epidemic of 1848: when one looks at the drawings of the latter, one cannot help thinking that the discovery of the cholera bacillus was very near being made in Bristol, instead of being "made in Germany."

Of course these discoveries have led to a more exact treatment of disease; and as in the case of diphtheria the study of the life-history of the Löeffler bacillus has led to the treatment by antitoxin, and thus shorn the disease of half its terrors, so in other diseases doubtless the antitoxin treatment, in one form or another, will become still more perfected, for as yet, I take it, we are only on the threshold of bacteriological knowledge.

Treatment of disease leads me to the subject to which I wish particularly to direct your attention this evening, and that is the treatment of diseased conditions by the X-rays.

It is now some ten years ago that Röntgen gave to the world his discovery of what he happily termed the "X-rays," and thus opened a new field of inquiry to the physicist, and at the same time gave to surgery and medicine a new power in diagnosis and treatment. It is needless to dwell on the aid the X-rays are to the surgeon, and to the physician as well in diagnosis, but I would rather dwell on their use as a method of treatment.

On their first introduction, with the imperfect apparatus at the command of the operator, very long exposure to the rays was necessary to get an image on the photographic plate, and, as we know now, it was not to be wondered at that very soon marked destructive action on the skin exposed to the rays was observed, a dermatitis being set up which was followed by extensive ulceration of a most obstinate character. Early workers at radiography were amongst the worst sufferers from this action of the rays, owing to their testing the penetrating power of their tubes by holding their hands between the focus-tube and the screen, and there are many men going about to-day with an incurable condition of the skin and nails of their hands due to this cause.

The skin thus damaged was soon examined microscopically by many observers, and the main conclusion from their investigations was that it was the cellular element of the tissues that was found to be affected. Thus Scholtz,[1] quoted by Pusey and Caldwell,[2] after many experiments on the skin of animals, says: "(1) X-rays influence especially or exclusively the cellular elements of the skin. These are inflamed primarily, and undergo a slow degeneration, whilst the connective tissue, the elastic tissue, musculature, and cartilage are changed only in a slight degree, and suffer only secondarily as a result of the cellular degeneration and the inflammatory reaction consequent to it. (2) The degeneration affects the epithelial cells in the highest degree, and to a less extent the cells of the glands, the vessels, and muscular and connective tissues. (3) The degenerative appearances are of various kinds, and affect both the protoplasm and the nuclei of the cells. (4) As soon as the degenerative process has reached a certain point, an inflammatory reaction appears, which manifests itself in a marked dilatation of the vessels, with gathering leucocytes and marked emigration of the blood corpuscles. When there is greater cell-degeneration as a result of stronger exposure, collections of leucocytes press into a mass of degenerated cells and accomplish their further destruction.

Various investigations have been made as to the effect of

[1] *Arch. f. Dermat. u. Syph.*, 1902, lix. 241.

[2] *The Röntgen Rays in Therapeutics and Diagnosis*, 1903, p. 258.

the X-rays on all kinds of animal matter. Amongst the most interesting are those of Bordier and Galimand,[1] who subjected hen's eggs to the action of X-rays with the object of seeing what effect they would have on development. They placed a certain number of eggs in an incubator, half of which they exposed from time to time to the rays, and the other half they kept as controls. These latter went on in the incubator to perfect development, but not one of the rayed eggs showed a trace of embryonic formation, and in addition to this, the contents had altered in appearance: the white and the yolk were distinct, the white being more fluid than that of a fresh egg, and the yellow more granular than normal.

Again, Higham Cooper[2] having noticed symptoms of toxæmia in patients he had treated for leukæmia, suggests that the symptoms were set up owing to the decomposition of lecithin by the rays, and quotes Werner, who found that lecithin when exposed to X-rays undergoes a kind of decomposition. He also quotes Halliburton, who states that in the ordinary metabolic processes lecithin is split up into stearic and glycero-phosphoric acids and choline. The presence of the latter in the blood would of course explain any toxæmic symptoms, but in addition to this we know that the nervous tissue is one of the tissues easily acted on by the rays, and also that it contains a large quantity of lecithin. From this he suggests that the changes noticed as the result of treatment by X-rays is after all a trophic one due to the destruction of the nervous tissue, the lecithin being broken up in the manner described.

As regards the mode of action of the X-rays, the same author gives a very suggestive experiment he has made with a photographic plate, tending to show that animal matter is necessary to the photographic result of the X-rays.[3] Thinking possibly that the gelatine in the silver emulsion used for coating the ordinary photographic plate may have something to do with the photographic impression made by the rays, he tried the effect of exposing a plate coated with collodion instead of gelatine, and found that the plate was practically unaffected by the radiation from the tube.

[1] *Méd. Electrol. and Radiol.*, vi. 161. [2] *Ibid.*, vii. 3. [3] *Loc. cit.*

Now if these investigations of Cooper, Bordier, Galimand and others are substantiated, it seems to me that a great advance has been made in placing the action of radio-active bodies on a scientific and sure footing. As to how these changes in animal tissues are produced has been, and for the matter of that still is, a vexed question. The most probable explanation is that of Sir Oliver Lodge,[1] who considers that the destructive effects of the rays are "a secondary effect, and are due to ultra-violet light . . . and to the chemical or ionising action of the rays upon the tissues or upon air in immediate contact with the exposed surface. This chemical or ionising action of the rays (the same sort of action as enables them to cause an electroscope to leak) results in the production of ozone and of oxides of nitrogen: briefly, they have an oxidising action."

Bordier[2] shows that X-rays have an effect on the phenomena of osmosis, and the consequent interference with the molecular exchanges is followed by disturbances of nutrition and inflammation.

Now these marked changes in the tissues produced by the X-rays soon led to their adoption as a therapeutic agent, on the supposition that they ought to have an effect upon diseased cells. It has been found that tissues vary very much as to their sensibility to the action of the rays. Thus Holznecht,[3] describing their action on various tissues, divides them into classes as follows:—(1) Very sensible: Lymphoid tissue, the skin modified by psoriasis and mycosis fungoides. (2) Sensible: Skin modified by inflammation, acne, sycosis, lupus, and epitheliomatous tissue. (3) Moderately sensible: Healthy epidermis and its appendages. (4) Very little sensible: Connective tissue, vessels, etc.

One of the first diseases in which the rays were tried was that intractable disease **rodent ulcer**, and perhaps it is in this that the treatment has achieved one of its greatest successes, some cases being cured in a remarkably short space of time. Mayou[4] has examined microscopical sections of rodent ulcer

[1] Lectures to Medical Practitioners, *Ibid.*, v. 205.

[2] *Med. Electrol. and Radiol.*, vii. 72.

[3] *Arch. d'Electric. méd.*, Jan. 10, 25, 1905; abstract in *Med. Electrol. and Radiol.*, vi. 49.

[4] *Tr. Path. Soc. Lond.*, 1903, liv. 229.

during and after healing, and finds that "if a section of rodent ulcer be examined after it has begun to react to X-rays the clumps of epithelial cells which make up the growth are found surrounded by enormous numbers of leucocytes. We know it is the duty of these leucocytes to remove all irritating substances from the part by breaking them up and carrying them away; or, failing that, to encapsule them with fibrous tissue, shut off their nutrition, and so prevent their spreading. In a section of rodent ulcer which has nearly healed we find a mass of granulation tissue organising with healthy epithelium growing in from the edge. Scattered here and there are epithelial cells in various stages of degeneration; the degeneration seems to take place from without inwards. Towards the centre of the clump of epithelial cells the cells become vacuolated, the granules in the cells increase in numbers, collect around the cell-wall, and seem in places to be making their way through it till they quite disappear."

In my own experience some cases have done remarkably well and healed up quickly, but in others I must confess the ulceration has proved most obstinate, and I cannot help thinking that the cases which do well are the ones which I should call the dry variety, in which there is little or no secretion; but the moist variety, in which there is a copious secretion forming crusts, does not do so well: they heal up to a certain point, and then break down again and become as bad as ever. This result may be explained when we remember that serum and serous effusions are very opaque to the rays, as shown by the shadow thrown on the fluorescent screen by serous effusion in cases of pleurisy, consequently it is more difficult for the rays to reach the diseased cells, having first to penetrate the layer of serum before reaching the diseased structures.

It was fondly hoped in the first enthusiasm that was set up when the penetrating rays and their destructive action on the tissues of the body were discovered that at last a cure for **cancer** had been discovered; but, alas! although the rays have a very marked effect on the superficial manifestations of malignant disease, yet at present, at any rate, disease in the deeper structures of the body is beyond their influence. Still there

can be no doubt that the X-rays are a most valuable form of treatment in inoperable carcinoma. Superficial nodules and ulcers will heal up under their influence, and enlarged glands will sometimes disappear, and, if for nothing else, they ought to be used for the very marked relief they give to the pain of malignant disease. It is sometimes amazing the relief thus afforded, especially in cases where a nerve is implicated either in the scar where the secondary growth has occurred, or on the surface of the ulcer, where the rays can readily reach it.

Never shall I forget one poor woman at the Infirmary with cancer *en cuirasse*, who continued to come for a dose of the X-rays as long as she could crawl simply for the relief she got from the excessive pain of the disease. The relief thus afforded is due most probably to the destructive action of the rays on the lecithin of the nerve tissue, as I have before mentioned.

Many observers have examined healed carcinomatous growths microscopically, and they all agree that the cells are primarily affected, and the growth is replaced by a dense formation of connective tissue. Thus Pusey and Caldwell[1] state: "The first changes occur in the cells at the periphery of each nest of carcinoma. Later the same process involves all the mass, invading in succession the cells from the periphery to the centre. These cells are found in various stages of destruction, or, if such it may be called, necrosis. The term necrosis, however, as ordinarily used, does not accurately describe the process as it occurs under X-rays. In the ordinary form of necrosis the cells retained more or less completely their form, and the first change induced is in the nuclei, which fail to take the basic stain, while the tissues in general take a diffused acid and basic stain, apparently a mixture of the two. On the other hand, in the tissue breaking down under X-rays, the cells and nuclei lose their outline, the chromatin of the nuclei appears to become spread out and mix with the protoplasm of the cells, where it is frequently seen as streaks or more or less irregular areas, staining a rather bright blue, and resembling to a certain extent mucoid degeneration. . . . The blood vessels, especially the small ones, which are in close relation to the tumour, show

[1] *Op. cit.*, p. 266.

marked endarteritis, completely occluding the lumina of the vessels. Around the occluded blood-vessels the breaking down of tumour cells is decidedly more pronounced than at any other place, even at the periphery of the cell nests. The tumour cells gradually disappear by a process which appears to be some form of cytolysis, which is then followed by their absorption."

In the final stage, "when the skin of the scar which replaced a former cancerous ulceration was examined, the carcinomatous tissue was replaced by a dense layer of healthy active tissue, whose fibres present a strikingly regular appearance." Enlarged glands in malignant disease sometimes disappear under the rays, and although they may appear enlarged or hardened, still this may be due to calcification of the gland and not to cancerous deposit. Thus Higham Cooper[1] quotes a case of recurrent cancer in which a supra-clavicular gland remained of a stony hardness, but when this gland came to be examined *post-mortem* (the patient having died of secondary deposit in the liver) it was found to be calcified and *not* malignant. Again, Knox[2] gives a detailed account of a case he had rayed in which he had specially examined the glands. In one gland which had been extensively rayed "the gland tissue was entirely replaced by a new growth which consisted of a fibrous stroma, in which existed large spaces blocked by epithelial cells. The growth was an epithelioma, in which the cells and nuclei were small and shrunken. Fibrous stroma appeared to be in excess, involving the areas of new growth, causing degeneration of the cells." Whole areas stained badly as regards fibrous stroma and cells. In a second gland, which became enlarged subsequently to the first, not nearly so much fibrous tissue was found, and the reaction to staining was more marked, both as regards fibrous tissue and cancer cells, and the latter were in larger groups and appeared more active. A third gland still more recently enlarged showed "columns of densely-packed malignant epithelial cells"; so that it seems that the X-rays have a very marked action on glands secondarily enlarged in malignant disease, the diseased cells being destroyed, and the gland tissue being replaced by a new growth of fibrous tissue.

[1] *Loc. cit.*, p. 5. [2] *Lancet*, 1906, i. 1755.

Wonderful cases of symptomatic cure have been reported, as for instance[1] a patient, aged 63, who had her right breast removed in 1899. Recurrence took place in the scar two years afterwards, when there was a thickened mass in the scar adherent to the ribs and skin, with a large ulcer 2 in. by 1½ in. with hard edges and a foul irregular base, the axillary glands were slightly enlarged, this being the condition when the X-ray treatment was commenced in November, 1901. After six weeks the ulcer was noticeably cleaner, and rapidly became superficial and healed. At the same time the hard mass decreased in size and became movable on the ribs, the gland in the axilla rapidly disappeared, and in January, 1902, there was only a slight thickening to be felt, and the scar was soft and healthy. In August, 1903, that is four years after the commencement of treatment, the patient was in excellent condition, the scar was soft and quite healthy, and there was no thickening to be felt.

I cannot point to any such successful case in my own practice, but a typical sort of case one gets is where in shorter or longer time after excision of the breast the scar and its neighbourhood becomes studded with nodules quite inoperable, and it is thought worth while to see what the rays will do. After a few exposures, as soon as a slight dermatitis is established, these nodules, invariably I may say, disappear, and the scar becomes perfectly smooth and healthy-looking; enlarged glands too subside and may disappear. The patient goes on quite well for a time, and then after a longer or shorter interval evidence of cancer of the lung, or of secondary deposit elsewhere makes its appearance, but I am certainly under the impression that this fatal result is postponed considerably by the treatment, the rays seeming to have a retarding influence over the progress of the disease, and the secondary disease does not ensue so rapidly when the patient is under treatment as it does when she is not.

Lyster[2] admirably sums up the present position of X-ray treatment of malignant disease thus: "X-ray treatment of malignant disease should never be attempted when an operation

[1] *Arch. Middlesex Hosp.*, 1904, ii. 141. [2] *Ibid.*, p. 142.

is possible, but in those cases where no operation is possible pain can be relieved, and in cases that are local and superficial the treatment may be considered hopeful, though no hope should be definitely held out of the growth vanishing. The word 'cure' should never be employed."

With this I cordially agree, but I still think that every patient suffering from inoperable carcinoma ought to have the benefit of X-ray treatment for the following reasons: (1) Because of the relief from pain; (2) because of the removal of local disease, which causes such mental relief; (3) because of the prolongation of life from retardation of the disease; and (4) on the off-chance that with the removal of the local mischief there may be no recurrence, as witnessed by the cases of apparent cure which have been reported.

In **sarcoma** the rays undoubtedly have a very marked effect, at any rate for a time. I have seen a mass in the scrotum as big as a turkey's egg, recurring after excision of the testis for sarcoma, entirely disappear, but in this case unfortunately large deposits subsequently occurred in the abdomen, causing a fatal issue. Again, in a hospital patient a man had his leg amputated for sarcoma of the tibia in August, 1905, and recurrence occurred in the stump in the periosteum of the femur in December; further operation was not thought advisable, and he was sent for treatment. At the present time, ten months after, there is no further advance in the disease, and there is nothing to be felt beyond a slight thickening around the femur. Here, although this man cannot be said to be cured, yet undoubtedly there is a checking of the disease; for if the disease is so malignant as to recur five months after operation, surely one would have expected an enormous advance in its ravages ten months later, instead of which the patient is at the present time in excellent health, and there is at any rate no evidence of the disease advancing in the affected part.

Another disease in which the treatment by X-rays has lately attracted a great deal of attention is **leukæmia**, and a number of cases in which apparently great benefit has been received have been reported. The number of the leucocytes in the blood has been greatly reduced in the successful cases, and

this result is probably due to their destruction by the action of the rays. It has been found that X-ray radiation has a very marked effect on the lymphocytes and the lymphoid tissues generally. Heineke[1] has rayed the spleen in small animals, with the result that on examining the spleen there was "an excessive increase in pigment, disappearance of follicles, and destruction of the splenic pulp." In most of the cases treated there are symptoms of toxæmia, as shown by high temperature and other toxic symptoms, and in a few cases sudden death has occurred. Now if the leucocytes are destroyed by the rays, it is not to be wondered at that the circulation of effete material in the blood-stream should set up toxic symptoms, or even be the cause of sudden death; also, if the X-rays have such a destructive action on the spleen as Heineke asserts, it seems to me that to destroy the follicles of this gland and thus put out of action more or less the largest of the blood-forming organs of the body, requires a great deal of consideration; and on these grounds, if the treatment is to be used at all, very short exposures should be used, and the patient should be most carefully watched.

Perhaps the disease in which X-rays have been most extensively used is **lupus**, and here the treatment has perhaps achieved some of its greatest triumphs. The localised patches of lupus yield very readily as a rule to the treatment, but the more extensive the disease is the more difficult it seems to cope with it: even these cases yield in time, but only after prolonged treatment. Prolonged treatment in these cases is not peculiar to the X-rays, for the Finsen light, which gives such excellent results, requires to be applied for months or even years; and I have known cases where a patient has been treated with the Volkmann's spoon at the hands of the surgeon, and has had to undergo operation not once nor twice but several times, such scrapings extending over many months before a cure resulted.

The beneficial results in lupus are produced mainly by the leucocytosis set up, although the rays have a destructive effect

[1] *München. med. Wchnschr.*, 1904, li. 785; abstract in *Med. Electrol. and Radiol.*, July, 1904.

on the lowly-organised cells of the diseased part as well. It is now universally accepted that the rays have no bactericidal action. Grouven[1] describes the course of healing of lupus as follows: "Hyperæmia, leading to increased diapedesis of leucocytes, first at the periphery of the nodules, pressing on into the interior, changing into spindle cells and new connective tissue elements. The cells of the nodules undergo degeneration and absorption, and are replaced by connective tissue."

Lupus is a disease which seems to be most favourably influenced by opsonic treatment. It is reported that by observing the opsonic index of patients it can be foretold which cases are likely to react well to X-rays and which are not. Patients with a low opsonic index receive no benefit from the treatment, but as soon as the index is raised reaction occurs and healing rapidly follows,

In all these grave diseases which I have been discussing the rays have been called on to do what other methods of treatment have failed to accomplish, and to a certain extent they have achieved their purpose, but I think it is not sufficiently appreciated what a valuable means of treatment lies ready to the practitioner's hand in the X-rays in some minor diseases, especially in various forms of **skin disease.** Take for example psoriasis. In this disease it is wonderful to see the effect of the rays: a few applications of quite short duration to a patch of psoriasis will clear it up, leaving healthy skin behind, and this too without setting up any inflammation. And that the improvement brought about is in no way due to any method of treatment that is being used at the same time is shown by its being the patches that are rayed, and those patches alone, which are cured, patches in other parts of the body being unaffected. Thus, if the arms are treated they get well, but the legs, which may be equally bad, remain in the same state as before.

Of course one cannot expect the rays to remove the special dyscrasia which produces the disease, but that its local manifestations can be removed there is no doubt. Here again I cannot help thinking that why the rays have such a marked

[1] Quoted by Pusey and Caldwell, *op. cit.*, p. 263.

effect in this disease is because the rash is of a dry character, and the absence of serum on the surface enables the rays to reach the diseased structures so much more easily. All chronic hypertrophies of the skin are favourably affected, *e.g.* patches of dry eczema, lupoid patches, etc., disappearing as a rule after a few applications.

It is in the treatment of **diseases of the hair** that X-rays find one of their widest fields of usefulness. Here their action is, I may say, a mechanical one. The slight dermatitis which one aims at setting up causes a certain amount of inflammation in the hair follicles, which causes the hair to be shed with its accompanying fungus, allowing the parasitic remedies employed to be applied direct to the cause of the disease. The rays have to be applied with care, because it is quite possible to set up so much inflammation as to cause destruction of the hair follicles, and consequently cause permanent baldness, but with the rays carefully applied, what method of treatment can vie with them in such intractable complaints as sycosis and favus? Here as soon as the depilatory effect is produced the disease is speedily cured. Again, thanks to the labours of Sabouraud, the X-rays bid fair to revolutionise, if they have not already done so, the treatment of tinea tonsurans. By means of Sabouraud's pastilles or some form of radiometer by which the activity of the vacuum tube can be measured, a dose of rays is applied to the diseased patch, and in one or more applications depilation is effected without any pain, and much more effectually than by epilating with the forceps. In some of the London hospitals I have seen an apparatus which, by means of a radiometer to show the activity of the tube, and knowing by various instruments the strength and volume of the electric current passing through the tube, an exact knowledge of the amount of X-rays being used is ascertained. Accordingly, the physician in attendance orders how many units of X-ray radiation are to be applied, a clock is set to that figure, and the apparatus is turned on; as soon as the dose is administered the clock automatically switches off the current, and the patient is sent away with orders to report himself again in a month. Epilation is usually effected in a few days' time, but if this does not occur

it is dangerous to apply the rays again at once, and the patient is told not to report himself for a month, when if necessary a second dose is administered.

Unfortunately it is not given to every hospital to have unlimited funds at its disposal for instruments of this kind which are more or less on their trial, but if such instruments can be perfected and shown to be absolutely reliable, every hospital in the country ought to be provided with one, and when it once became known that the means had been devised for curing ringworm speedily, it is not too much to hope that parents will bring their children for treatment much earlier than they do at present; and, also, is it too Utopian to suggest that in the not very far distant future tinea tonsurans may become, though not unknown, at any rate a much rarer disease than it is now.

As far as I have seen, very good results may be obtained by working carefully without any of these elaborate instruments, by using a tube of moderate hardness, giving five minutes exposure twice a week and stopping when there is a trace of redness on the skin. As soon as this latter occurs the hairs come out readily, and very speedily the patch is cured.

From facts I have brought before you in this brief résumé of X-ray therapeutics it is very evident that the rays have a very marked effect on the superficial tissues of the body, but as yet, with the means at our disposal, the deeper structures have escaped their remedial influence. It must, however, be remembered that Röntgen only made his discovery ten years ago, and that radio-therapy is therefore quite a young science. Improved methods of producing the rays are constantly being brought forward, and experience in their use is daily accumulating, so that with increased power in the operator's hands and enlarged experience in the use of this therapeutic agent, I think we may confidently look forward to a greatly-extended use of this valuable method of treatment in the near future.

FIBROMA OF THE ABDOMINAL WALL.

BY

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THOUGH the records of a large number of cases of fibroma of the abdominal wall have now been published—for example, C. Pfeiffer recently based a paper upon 400 cases—the disease is nevertheless uncommon. During a hospital experience of eighteen years it has only been my fortune to meet with one typical example, in which the diagnosis was verified by microscopical examination of the tumour after its removal, and this occurred recently. Some years previously I made a diagnosis of fibroma of the abdominal wall in the case of a woman who attended the Hospital out-patient department; but she ceased to attend after one or two visits, and the correctness of the diagnosis could not be tested. The woman had a hard mass in the abdominal parietes in front on the right side in the lumbar and hypochondriac regions.

The following are the clinical notes of the case I now wish to bring forward as a typical example of the affection:—

F. L., housewife, aged 29, was admitted to the Bristol General Hospital in January, 1905, with the following history.

She has had three children, and it is two and a half years since her last confinement. For two years she has been liable to attacks of pain in the left iliac and hypogastric regions of the abdomen and in the lower part of the back. The pain usually lasts two or three hours, but sometimes it persists for half a day. Rest relieves it, especially if she lies down. The pain in the back is more severe than that in front. During the first year the attacks of pain were at intervals of two or three months, but for the last year she has had them regularly every month without exception. They occur one week after menstruation. Four months ago, when lifting a tub of ten or twelve pounds weight, she was suddenly seized with a severe attack of the pain and had to keep her bed for two days, and the pain persisted for a week. It was on this occasion she made the

discovery that she had a swelling in the left iliac region. She feels sure that no swelling existed there before, and that now, four months later, it is smaller than at first. She believes that the act of raising the tub produced the swelling. Since then the attacks of pain have occurred, as before, at monthly intervals, but they have been more severe.

State.—The patient is well nourished and apparently in good general health. There is an obvious slight prominence in the left iliac region, and palpation shows that this is due to an extremely hard, well-defined swelling of ovoid shape, with its long axis parallel to Poupart's ligament. The lower border of the mass is close to the ligament mentioned, the inner border reaches a point an inch and a half from the middle line, the outer border is an inch to the inner side of the anterior superior iliac spine, and the upper border is about three inches above the lower border. Contraction of the abdominal muscles obscures the borders of the swelling, but not the centre. When the muscles are flaccid the mass can be moved a little backwards and forwards and from side to side, but not from above downwards; also the fingers can be pressed beneath its upper and inner borders, and these borders can be raised. The swelling is not tender. A vaginal examination showed the absence of any pelvic swelling and of pelvic connections with the swelling in the iliac region.

A diagnosis of fibroma of the abdominal wall was made, and operation decided upon.

Operation.—An incision parallel with and about two inches above Poupart's ligament was made over the most prominent part of the swelling. The deeper layer of the superficial fascia was well defined and strong. The external oblique muscle and aponeurosis were much thinned, but completely covered the tumour. They were incised in the same line as the skin, and the flaps deflected upwards and downwards. This exposed the surface of the encapsuled tumour. Its upper border was intimately blended with the arched fibres of the internal oblique and transversalis muscles, and a narrow band of the same muscular tissue separated the lower border of the tumour from Poupart's ligament. These muscles were separated from the tumour, and the latter shelled out from the sub-peritoneal fat upon which it lay. The fat was abundant. There was an intimate connection between the inner end of the tumour and the anterior layer of the sheath of the rectus muscle. This was separated with the scalpel. After removal of the tumour a large gap was left between the fibres of the internal oblique which had been above the tumour and those which had been below. These two sets of fibres were joined with interrupted catgut sutures, which also passed through Poupart's ligament. The tension on these sutures was great, tending to split the muscles. The external oblique flaps were sutured, and also the deeper layer of the superficial fascia. Lastly, the skin wound

was closed with Michell's sutures. The external abdominal ring was not exposed, nor was anything seen of the round ligament during the operation.

The wound healed by first intention, and twelve months later there was no sign of a recurrence of the tumour nor of weakness of the abdominal parietes at the seat of operation.

The tumour was hard and fibrous in appearance, and creaked under the knife when divided. It was roughly oviform. Macroscopically the section surface showed interlacing whitish fibres with darker areas of dense tissue between them. The mass was encapsuled. After soaking in formalin solution the capsule, together with a portion of the tumour substance proper, was peeled off. The tumour measured about five inches in the long axis and three inches in breadth and thickness. Microscopically it was found to consist of interlacing tracts of fibro-cellular connective tissue.

Fibromata of the abdominal wall, or desmoids as the Germans name them, are not tumours frequently met with, as I have stated above. Leon Labbé observed only ten cases in the Paris hospitals in the course of twenty years. Sanger collected seventy cases of tumour of the abdominal wall, of which sixty were fibromata. Ledderhose collected 100 cases in 1890. C. Pfeiffer's paper on the subject[1] is based on a consideration of 400 cases. These include 40 cases observed in Von Brun's clinic in the course of forty-six years, the 100 cases of Ledderhose, and 260 cases collected from other sources.

The tumours are met with in women much more frequently than in men, according to Pfeiffer in the proportion of 7 to 1. Women are affected most frequently in that period of life during which they most often bear children, between the ages of 25 and 35. In men the age-period in which the tumours are most frequently found is from 35 to 50.

The growths originate in the muscular and aponeurotic structures of the abdominal wall—hence the name desmoid which is given them—and most frequently in the lower part of the abdomen. According to Pfeiffer's statistics, 43 per cent. arise in the rectus muscle or its sheath, 17.5 per cent. in other abdominal muscles, and 17 per cent. in the superficial or deep abdominal fasciæ. Several muscles may be involved and the

[1] *Beitr. z. klin. Chir.*, 1904, xliv. 334; abstract in the *Zentralbl. f. Chir.*, 1905, xxxii. 114.

point of origin be undiscoverable. The structure is usually fibrous, more or less richly cellular. Rapidly-growing parts may resemble sarcoma in structure. Fibro-myomata are rare. Ætiologically the facts that these tumours in 89.4 per cent. of the cases affect women, and that of those affected women 94 per cent. have given birth to children, seem most significant. Distension of the abdominal wall apart from pregnancy is not a cause. In pregnancy there is hypertrophy of the abdominal wall; in pathological distension there is atrophy. Pfeiffer is inclined, with Ribbert, to attribute the tumours to the hypertrophic tendency induced by pregnancy persisting in circumscribed tracts of muscular or fascial tissue. Any cause of cell proliferation might similarly be the starting-point of such a tumour. The symptoms may be slight, and the tumour is often discovered accidentally by the patient. They may be discovered only after they have reached a large size, especially if the enlargement has been towards the abdominal cavity instead of outwards. They may grow slowly and steadily, or stop growing for a time and later begin to grow rapidly. In some cases they seem to become sarcomatous. If the tumour is near a bone the tendons and muscular fibres passing to it may be felt as a tense and firm band, simulating a bony pedicle.

The treatment should be early and complete removal. The peritoneum may be involved when the tumours are large and have to be resected more or less extensively, increasing the danger of the operation and the tendency to ventral hernia subsequently. In Pfeiffer's cases permanent cure followed operation in 50 per cent. of the men and in 90 per cent. of the women. Incomplete removal of the capsule may lead to early recurrence. Recurrence, when it takes place, is said by Senn to occur usually after a three-years' interval, so that a permanent cure cannot be assured before that period of time has elapsed.

THE PRESERVATION OF THE LIMB IN THE TREATMENT OF SARCOMA OF BONE,

WITH THE ACCOUNT OF A CASE IN WHICH THE UPPER HALF OF THE FIBULA WAS EXCISED FOR PERIOSTEAL SARCOMA.

BY

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THERE is no doubt that periosteal sarcoma is a very malignant form of sarcoma; it tends to recur in the stump, or the neighbourhood of the stump, after amputation, and in spite of amputation metastatic growths, especially in the lung, are very likely to occur. It is more malignant when attacking some bones than others. In the femur and humerus the tendency to recurrence is terribly great. Nearly all British surgeons advocate amputation for periosteal sarcoma, and some urge higher amputation than is usually done at the present time for periosteal sarcoma of the femur and humerus—hip-joint amputation for all growths affecting the femur, and Berger's amputation rather than amputation at the shoulder-joint for such growths of the humerus in its upper part. On the other hand, the generally-recognised treatment of sarcoma of a muscle is not amputation but excision of the growth, though I know one surgeon has consistently advocated amputation for such growths, because he considers that they are as malignant as periosteal sarcomas of bone, or at any rate of certain bones. But the majority of British surgeons are not consistent about this, for there is really no reason why we should amputate a limb for a periosteal sarcoma of the tibia and excise a round-celled sarcoma of the tibial muscles.

In a paper read before the Bristol Medico-Chirurgical Society in December, 1904, I advocated the preservation of the limb in certain cases of periosteal sarcoma. Since then I find some continental surgeons have adopted this practice for several

years. In the *Lancet* (vol. i., 1906, p. 82), Professor Goldmann, writing on the "Conservative Operations for Malignant Growths of Long Bones," says: "Judging from various publications following upon Mikulicz's paper of 1895, it appears that our view as regards the operative treatment of malignant growths of long bones has undergone a change. Whereas it has hitherto generally been accepted that, especially in cases of periosteal sarcoma, amputation or removal of the whole of the diseased bone, is indicated, we now consider conservative treatment, consisting in excision of the tumour only, justifiable, and more so when an early stage of the growth is diagnosed." Professor Goldmann refers to two very encouraging cases in which he excised portions of the tibia for periosteal sarcoma, and there was no recurrence six years later in either. In one of these cases a considerable portion of the tibia was excised, and the very ingenious plan adopted of dividing the upper end of the fibula and inserting its pointed end into a hole bored in the upper end of the tibia. Ten weeks after the operation the patient was able to support the full weight of the body on the limb, and in the course of two years radiographs showed that the fibula had become almost as thick as the tibia.[1]

Gross in 1879[2] published a paper giving statistics of the course of various forms of sarcoma of bone. Unfortunately these statistics are not of consecutive cases, but they are nevertheless of considerable value. I fear consecutive cases would give even a worse prognosis. Gross shows that, taking all kinds of periosteal sarcomata together (spindle-celled, round-celled and osteoid), in 37 cases followed up after amputation, metastases developed in two-thirds, and in rather less than one-half local recurrence took place. This shows how liable the patient is, not only to local recurrence after amputation,

[1] Mikulicz, "encouraged by Von Bergmann's and Von Bramann's success in resecting the tibia, performed resection, instead of a more radical operation, for a periosteal spindle-cell sarcoma, involving the lower third of the femur." He removed eight inches of the femur, and then sawed off the cartilaginous surface of the tibia, and inserted the lower end of the femur in a hole bored in the lower end of the tibia. "Wiesenger also recently resected three cases successfully."—*System of Practical Surgery*, by Von Bergmann, Von Bruns and Von Mikulicz. Trans. by W. T. Bull, vol. iii., p. 557.

[2] *Am. J. M. Sc.*, 1879, lxxviii. 17, 338.

but even to a greater degree to secondary distant growths, though possibly if these growths had been excised rather than the limb amputated local recurrence might have been greater, yet still two-thirds would have died from metastases.

Wyeth's statistics are even more striking.[1] He collected 51 cases of fatal recurrence of sarcoma of the bones[2] of the lower limb after amputation at the hip joint, and of these no less than 36 had metastases without local recurrence.

The tendency to metastases rather than to local recurrence in periosteal sarcoma of the *leg bones* is further shown by the statistics of cases given in Mr. Butlin's *Operative Surgery of Malignant Disease*. Out of 21 cases which recovered after amputation, 16 died of metastases, and only 3 of these had local recurrence. On the other hand, Mr. Butlin has shown (*op. cit.*) that the tendency to recurrence in the limb after amputation, as well as to metastases, in periosteal sarcoma of the femur and humerus is very terrible, and it is for these cases he advises hip-joint amputation, even if the growth affects the distal end of the femur, and Berger's amputation when the growth affects the upper portion of the humerus. But he admits that amputation at the hip-joint has given no better results than amputation through the shaft, and holds out no prospect of permanent success. Although amputation at the hip-joint, as Mr. Butlin points out, has not now the very high mortality it had years ago, and the mortality of Berger's operation has fallen to 6 per cent. in 32 consecutive cases, and although it is with the greatest hesitation that I should venture to form any opinion at variance with Mr. Butlin's on such a subject as the treatment of malignant tumours of bone, yet I do venture to say that if the outlook is so terrible even with high amputation, my own feeling would be that it might be wiser not to sacrifice the limb, if we could excise a small, well-encapsuled growth, even on the femur or humerus, and leave a useful limb.

I must admit that every case of local recurrence is a possible source of secondary growth in the lung; but if we have the

[1] *Ann. Surg.*, 1901, xxxiv. 375.

[2] It is almost, but perhaps not quite, certain from his paper they were all sarcomata of bone. He refers in his paper to it as a "Study of Sarcoma of the Long Bones."

patient under frequent observation after excision of the growth, and can re-excise or amputate at once if there are signs of recurrence, we diminish this risk considerably. And we must remember that whether we amputate or excise the growth, in no less than two-thirds of the cases (and a larger proportion in the leg bones) metastases will occur.

I have dissected three cases of periosteal sarcomata of the bones, and in all the cases I found the growth well encapsuled; and Gross (*loc. cit.*) has shown that this is so in no less than half all periosteal sarcomata. I should only advise the excision of the non-infiltrating growths. If the growth was found to be infiltrating the surrounding parts, at any rate widely, I should amputate well above it. All muscles arising from the capsule of the growth should be cut at a distance from it, and I should always excise at least an inch of healthy bone above and below it, and I should, directly the portion of bone with the growth was excised, get a longitudinal section of it made to see if the growth had extended farther up the bone in the interior than on the exterior, and if so further bone should be removed. The whole fibula might be excised. Professor Goldmann (*loc. cit.*) has shown how much of the tibia may be excised. I should not hesitate to remove four inches of the femur, or even more of the humerus, and I should of course screw or wire the ends together. I think most persons would prefer a much shortened limb to an artificial one. Of course if such removal involved the loss of the most actively growing epiphyses of the bone in a young person, the late shortening, in addition to the immediate shortening, might be too great to make excision practicable. Large portions of either bone of the forearm could be excised, and after excision of a portion of the radius (as has been done in excision for myeloid sarcoma at the present day), it would be well to shorten the ulna to the same extent, and perhaps the tendons as well.

I have already stated that those surgeons who advise amputation for every periosteal sarcoma, and only excision of sarcomata of the soft parts, are not consistent. Granting that periosteal sarcoma of the femur and tibia are more malignant than any other form of sarcoma, we have no statistics showing

that periosteal sarcomata of the other long bones are more apt to recur *in oco* than sarcomata of muscles, fascia, joints and nerves. Mr. Butlin[1] has shown how malignant sarcomata of muscles are, and he consistently advises amputation for them. To Mr. Butlin's list of collected cases I can add one of my own of excision of sarcoma of the muscles of the forearm. There was no local recurrence, but the man died with a large growth in his chest a year later; and in another case of sarcoma of muscle and fascia at the back of the neck I have had to operate again and again for recurrence. Wyeth[2] records a case of sarcoma of the internal popliteal nerve, which twice recurred in the thigh after excision; finally the patient died with recurrence in the lungs twelve months after amputation at the hip, the stump remaining free. Howard Marsh[3] records a case of sarcoma of the synovial membrane of the knee, which recurred five times in six years after excision. Edington[4] records a case of death from secondary growths in the lungs and other parts fifteen months after excision of the scapula for spindle-celled sarcoma of the infra-spinatus muscle.

As it is generally recognised that endosteal sarcomata as a class are distinctly less malignant than periosteal, and that myeloid sarcoma usually does not recur *in loco* after excision, and only rarely leads to metastatic growths,[5] I need not urge excision of such growths rather than amputation. Indeed, the excision of myeloid sarcoma is now the rule of surgery. Some surgeons would also excise the more malignant endosteal growths. With these, however, the same precautions should be taken as to removal well free of the growths, I have specified with regard to periosteal sarcoma. In many cases we cannot tell whether a growth is endosteal or periosteal until we have excised it, and a myeloid sarcoma cannot often be with certainty diagnosed, at any rate until we have cut into the tumour.[6]

[1] *Operative Surgery of Malignant Disease*, 2nd Edition, 1900.

[2] *Ann. Surg.*, 1901, xxxiv. 375.

[3] *Tr. Clin. Soc. Lond.*, 1899, xxxii. 20. [4] *Brit. M. J.*, 1901, i. 954.

[5] Mr. Bland Sutton has proposed to call such tumours no longer sarcoma but myeloma.

[6] Gross estimated the frequency of myeloid sarcoma as 70 per cent. of all endosteal sarcomata, and out of eight cases of central sarcoma of the upper end of the tibia, referred to by Butlin and Colby (*St. Barth. Hosp. Rep.*, 1895, xxxi. 35), seven were myeloid.

I shall here record my own case of excision of half the fibula for sarcoma, and refer to another case of the same kind, published by Mr. Bland Sutton, and also refer to two cases of myeloid sarcoma of the head of the tibia in which several years ago I excised the portion of bone containing the growth, but saved the limb. As I have already stated, it has for some years now been the rule to excise myeloid sarcomata, but until I published these two cases[1] such growths in the main bones of the lower limb had not been excised. My first case has shown what a useful limb may result from such excision. The condition of the limb soon after the excision is fully described and illustrated in my original paper (nearly four inches of bone were excised), and I am glad to say the limb is still quite as useful to the patient, who is daily engaged in laborious work, and when I examined him last, six years after the excision, there were no signs of any recurrence. The other patient had a useful limb after the operation, but I cannot trace her now.

Case of Excision of Half the Fibula for Periosteal Sarcoma.—The patient, a woman, E. B., aged 27, was sent to me at the end of September, 1904, by Dr. James Young, with a tumour in the calf. It had been first noticed in May, when she was under the care of another doctor. It was hard and the size of a cocoanut, and was attached to the upper part of the right fibula, and projected backwards into the calf, and also outwards. At the upper part of the anterior interosseous space a smooth boss projected from the larger mass. A skiagram showed irregular bony projections from the shaft of the fibula, in the region of the growth. This made it quite certain that it was not merely a tumour attached to the bone, but a periosteal sarcoma. The dorsalis pedis artery could not be felt in the foot of the limb in which the tumour was situated, but could plainly on the other side. The posterior tibial artery could not be felt on either side.

I determined, if possible, to remove the growth, with the upper end of the fibula, rather than amputate the leg, but I did not feel sure that this could be done, for I thought

[1] *Brit. M. J.*, 1898, ii. 228.

the growth might have involved both the anterior and posterior tibial arteries, as well as the peroneal, and that by its removal serious risk of gangrene might be incurred. However, only the anterior tibial artery had to be tied. It was impossible to dissect out the boss of growth in the upper part of the anterior interosseous space without injury to this vessel. The external popliteal nerve, which ran in a groove on the tumour, I was able to preserve, and its two branches were not injured. Nearly the whole, if not the whole, of the peroneus longus had of course to be removed, and the upper portion of several other muscles, and the fibular attachment of the soleus, and the greater part of the fibular attachment of the tibialis posticus. The biceps and external lateral ligament of the knee joint had also to be severed, for the whole of the upper end of the fibula was removed. The bone was divided about its middle, well below the lowest level of the tumour.

The tumour was completely encapsuled in every direction except at its attachment to the bone. It contained a large amount of cartilage, and spicules of bone radiated into it from the shaft of the fibula. A microscopic section showed the sarcoma cells to be of irregular shape, and areas of sarcoma were mixed with areas of cartilage in the same section. The growth did not completely surround the shaft.

The wound, which was a very extensive one, was drained for forty-eight hours, and ran an aseptic course. The limb was kept on a back splint, with foot-piece, for a month after the operation, and then she began to walk on it. There was then a tendency for the foot to invert, and for some time she used a lateral splint at night. This tendency had by December quite passed off, and she then walked with only a slight limp, and without the aid of a stick. She could not evert the foot, nor to any extent invert it, but the flexors and extensors acted well, and the foot remained in normal position both when at rest and during walking. At this time I showed the patient and specimen at the Bristol Medico-Chirurgical Society. She has since had two recurrences in the leg; the first was excised eight months after the original operation, and the second six months later (ten months ago). At the first operation for

recurrence, the anterior tibial nerve had to be sacrificed, and she got paralysis of the extensors, but the power returned, and she could walk quite well. At the second operation for recurrence, part of the posterior tibial artery had to be removed, and also part of the external popliteal nerve, and paralysis of the extensors now persists, but she can walk for several miles on the limb without aid of any kind. Last summer I treated her with injections of Coley's fluid to try and prevent further recurrence. She is now (November, 1906, two years after the removal of the growth) free from recurrence.

What the prognosis is for periosteal sarcoma of the fibula treated by amputation it is difficult to say. Mr. Bland Sutton writing in 1896[1] says he could only find the complete records of 3 such cases; but I have already referred to Mr. Butlin's statistics of 21 cases, taking both bones together, with 16 deaths from metastases after amputation. The great majority of these were in the tibia, but there is no reason to think that growths in the fibula would be more exempt from metastases after operation.[2] The result so far, then, in my case is not discouraging; nor, even in Mr. Bland Sutton's case (of which details will presently be given) though the patient eventually died of metastases, was the result worse than in the majority of cases of periosteal sarcoma of the tibia treated by amputation. Coley has lately proposed[3] to treat operable sarcomas of bone by the injection of his fluid in order to save the limb. He has collected twelve cases of sarcoma of the extremities, three personal cases, and nine reported by other surgeons, in which the use of the toxines rendered amputation unnecessary. Of these, eight were free from recurrence three to six years. In all the cases but one the tumour was of bony origin, and in all amputation had been seriously considered, but it seemed justifiable to give the toxines a trial before resorting to it. I must say I should rather myself excise such growths where excision was practicable, but as a means of preventing recurrence Coley's fluid seems to me well worth trying, for if it can cause the disappearance of the tumour, how much more likely is it to destroy the few cells of the tumour

[1] *Brit. M. J.*, 1896, i. 1087.

[2] Mr. Butlin in *Operative Surgery of Malignant Disease* says they grow faster than similar growths in the tibia. [3] *Am. J. M. Sc.*, 1906, cxxxi. 375.

lying in the tissues, which eventually grow into a "recurrence." The fluid has been largely used in this way by Coley.[1]

After operating on my own case I found the record of a similar case by Mr. Bland Sutton.[2] The tumour was a round-celled sarcoma, and was of considerable size. Mr. Sutton had to divide the musculo-cutaneous nerve, but united it at the end of the operation. The anterior tibial nerve, as well as the anterior tibial artery, had to be sacrified, and this, of course, led to paralysis of the extensors; but by means of an "orthopædic arrangement" the patient walked "excellently." In the edition of his book on tumours, published in 1903, he has given the after progress of the case, and it is as follows: The growth recurred in the scar eighteen months after excision, and was again removed; but a more extensive recurrence took place six months later, and amputation had to be done. She died two and a half years after the first operation with signs of growth in the lungs. Mr. Bland Sutton has not proposed to extend the treatment adopted in this case to periosteal sarcomas on other bones. He decided not to amputate for periosteal sarcoma of the fibula because he considered it was not as malignant a form of sarcoma as periosteal sarcoma in some other bones.

Since advocating excision of certain periosteal sarcomata at the meeting of the Bristol Medico-Chirurgical Society in December, 1904, I have performed Berger's interscapulo-thoracic amputation for sarcoma of the upper end of the humerus. I did so because, as it was evident from the size of the growth and the proximity to the shoulder-joint amputation must be performed there, I did not see that the scapula and outer half of the clavicle would be any good to the patient, and the mortality of Berger's operation has not been great in recent cases. Therefore I felt inclined to sacrifice the shoulder girdle.[3] The growth was very large, and was broken up by hemorrhage. She had no local recurrence, but died from pulmonary disease, possibly due to metastases, a year after the operation.

[1] Vide *Bristol M.-Chir. J.*, 1906, xxiv. 148. [2] *Brit. M. J.*, 1896, i. 1087.

[3] An examination after amputation showed that amputation at the shoulder-joint would have divided the muscles and ligaments too near the growth.

There is one question I ought to refer to before concluding this paper, and that is—Whether instead of excising the portion of bone containing a myeloid sarcoma we might simply scrape the growth out of the bone? This has been done in several cases, and without recurrence when the patient was seen about two years after the operation, and in one case eight years after; but it is not always successful in preventing recurrence, for Mr. Butlin[1] mentions one case which recurred after scraping,[2] and amputation was performed two years after the first operation. Moreover, in two cases a sinus has remained for two years[3] after a myeloid sarcoma had been scraped out of the bone. I have also had a case myself which impressed me very much with the difficulty of getting the cavity in the bone to fill up.

A man was under my care in the Hospital with enlargement of the upper end of the tibia, the nature of which was doubtful, and on exploration I found the head of the tibia occupied by a mass of very soft, friable, yellow material, which could be easily turned out by the finger. It looked more like a degenerate gumma than anything else I had seen, but microscopic section of a little piece of firmer tissue than the rest, showed a structure so full of giant cells, it was probably a myeloid sarcoma which had undergone fatty degeneration. However, although the case was of great interest from the point of diagnosis, I refer to it here because the cavity, which was large, took so long to fill up, and a sinus persisted for so many months and prevented the patient returning to work (and may still persist, for he has left Bristol) that I wished I had resected the upper end of the tibia, for I am sure he would have preferred a shortened limb to one with a persistent sinus. Probably in cases in which we do scrape out a myeloid sarcoma it would be well to fill the cavity with decalcified bone chips to form a medium for the growth of new tissue, or better still to adopt the method of filling the cavity with wax and iodoform.

[1] *Operative Surgery of Malignant Disease*, 1900.

[2] Mr. Sheild also (*Lancet*, 1901, i. 97) refers to a case of recurrence after enucleation of myeloid sarcoma.

[3] Butlin, *Op. cit.*, and Hinds, *Brit. M. J.*, 1898, i. 555.

PROTEINS AND PROTEIN METABOLISM.

BY

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In this article it is proposed to deal as briefly as possible firstly with some recent views on the chemical structure of the protein molecule, and secondly with a few of the changes which proteins undergo in the body during digestion, absorption, and elimination.

The Chemistry of Protein.—The large group to which the term protein is applied consists of a number of more or less closely-related substances, which have been arranged in sub-groups according to the complexity of their structure. The simplest of these are the protamines and histones, the more complex the "albugins"[1] (albumins and globulins), and the most complex the conjugated proteins or proteides, in which additional groups are added to the protein molecule.

The construction of the protein molecule may conceivably be demonstrated either by analysis or by synthesis. At present, owing to the peculiar difficulties which surround the task, neither of these methods has been completely successful. It has, however, been possible to split off from the proteins certain groups of atoms the chemical structure of which can be determined; and by way of synthesis, Emil Fischer has recently succeeded in piecing together a number of these atom groups to form a substance which closely resembles proteose, a simpler protein naturally derived by hydrolysis from the more complicated molecules during the process known as digestion. A class of substances which has been found to constitute a great number of the atom groups which can be split off from protein is that known as the amino-acids. These

[1] This name has been officially dropped "like a hot potato," but no cooler substitute has been offered in its place.

are bodies in which the hydroxyl group of an oxy-acid is replaced by NH_2; thus

Glycocoll CH_2NH_2COOH

may be regarded as a derivation of

Oxy-acetic acid $CH_2OHCOOH$.

A large number of these amino-acids exist: some are mono-amino acids, *i.e.* they contain only one amine or NH_2 group; others are diamino acids, and contain two. They may also contain an aromatic ring, such as tyrosin, which is para-oxy-phenyl-amino-propionic acid.

$$C_6H_4.OH.CH_2CHNH_2COOH.$$
$$1:4.$$

The simplest proteins consist of these amino-acids only: the protamines, for instance, consist as to 80 per cent. of an amino-acid called "arginine," the rest being leucin or amino-caproic acid. Arginine is what is known as a binary product, that is, it can be further split up into two others, though this is not accomplished by hydrolysis. The two substances are ornithin, an amino-acid, and guanidine, the former constituting as it were the bulk and the latter a sort of side chain in the molecule. Guanidine has the formula

$$\begin{array}{l} NH_2 \\ | \\ C{=}NH \\ | \\ NH_2 \end{array}$$

and it is probably the number of free guanidine side chains bearing the basic group NH_2 at their extremities which gives to protamine its basic character. It will be noted that guanidine is closely related to urea or carbamide.

It has been estimated that protein may consist of about 100 to 120 atom groups or "nuclei"; the simple proteins do not differ from the more complicated ones in the number of nuclei they contain, but merely in showing less variety in the composition of the groups.

Hæmoglobin (a compound of hæmatin and a histone globin), being crystallisable, has had its molecular weight estimated. 100 grams Hb absorb ·2264 grams of oxygen; this would give 14,250 as the molecular weight. The iron content brings out the molecular weight at about 16,000, and other methods give

closely similar results. Hæmatin itself has a molecular weight of about 600, and if this be deducted, globin will have a molecular weight of about 14,400. The average molecular weight of the known "nuclei" or radicles is about 140. When these unite together the condensation is accompanied by the loss of one molecule of water, so that 18, its molecular weight, must therefore be deducted, and about 120 put down as the molecular weight of an atom group in composition. For globin, therefore, $14,400 \div 120 = 120$ will be the number of atom groups in the molecule.

To the amino-acid groups Fischer has given the name "peptide"; a combination of two of these would be a "dipeptide," and of several a "polypeptide." These polypeptides are the component groups of proteoses. With certain exceptions, one of which has been noted above, proteins all have an amphoteric reaction, that is they are weakly acid and weakly basic at the same time. That they are not strongly one or the other is due to the way in which the amino-acids combine. Supposing two amino-acids—R_1CHNH_2COOH and R_2CHNH_2COOH—are to be combined, where R_1 and R_2 represent any radicles. These can be written—

$$\begin{array}{l} H_2N,CH,CO[OHH]NH,CHCOOH \\ \quad\;\; | \qquad\qquad\quad\;\; | \\ \quad\;\; R_1 \qquad\qquad\quad\;\; R_2 \end{array}$$

If the OH and H enclosed in brackets go out as water, the resulting substance will have at one end a basic H_2N group and at the other an acid COOH group, and thus the amphoteric character will be produced. Decomposition will, moreover, be possible by hydrolysis, *i.e.* by absorption of the OHH group eliminated in the formation of the compound.

Oxidation of a polypeptide will first affect the side chains, represented by R_1 and R_2 in the formula above. These eventually may be oxidised to COOH, and we shall then have—

$$\begin{array}{l} H_2N,CH,CO,NH,CH,COOH \\ \quad\;\; | \qquad\qquad\quad\;\; | \\ \quad COOH \qquad\quad COOH \end{array}$$

Further oxidation splits off CO_2 and turns the CH into CO groups—

$$H_2N,CO,CO,NH,CO,COOH.$$

This very unstable grouping would hydrolyse itself into

$CONH_2(COOH)$ or oxalamide, which then again is easily hydrolysed into oxalic acid, COOH,COOH and ammonia NH_3; in fact, these are the principal products when protein is oxidised by potassium permanganate.

Further changes produced by the agency of bacteria may take place in the cleavage products of protein. Thus arginine may be oxidised to putrescine—

$$CH_2NH_2(CH_2)_2CH_2NH_2$$

and from lysin

$$CH_2NH_2(CH_2)_3CHNH_2COOH.$$

cadaverine is formed

$$CH_2NH_2(CH_2)_3CH_2NH_2$$

CO_2 being split off.

These substances, the products of decomposition of animal bodies, are with their oxidised products known as "ptomaines."

Less is known of the atom groups not amino-acid in structure. Some, at any rate in the case of several protein substances, are of the nature of carbohydrates. A large amount of physiological and pathological evidence is now available which shows, both from the analytic and synthetic side, that a carbohydrate nucleus can be built into the protein molecule. Pavy has succeeded in splitting off a carbohydrate from many protein bodies, and regards this fact as of fundamental importance to a right conception of the nature of diabetes mellitus.

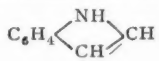
Glycosamine is the best-known of these carbohydrate nuclei.

$$CHO.CHNH_2(CHOH)_3CH_2OH.$$

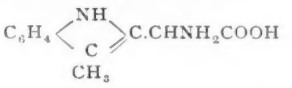
It probably exists in a polymeric form in the protein molecule, which may be split up by hydrolysis.

Glucoproteides form a special class of proteins, in which the carbohydrate portion can be split off without destroying the proteid character of the molecule.

The aromatic nuclei are of especial interest in connection with the excretion of indol and skatol. These toxic substances are in the liver oxidised and combined as sulphates, in which form they appear in the urine; a failure in this process may account for some auto-intoxications. Indol, which has the formula



and skatol, which is methyl indol, do not exist as such in protein. In their place is tryptophane—



which gives rise to the Adamkievicz reaction characteristic of protein substances.

Phenylalanine and tyrosine, other aromatic nuclei, are precursors of homogentisic acid, a body which reduces Fehling's solution. It is chemically dioxyphenyl-acetic acid C_6H_3OH, OH,CH_2COOH (alkaptonuria). Of the sulphur-containing groups cystin is the most important. Cystin is a "binary compound," but it cannot, like arginine, be split up by hydrolysis. It is formed from two molecules of cysteine and amino β thiopropionic acid, with the loss of a molecule of hydrogen, not of water.

Cystin is $CH_2SH,CHNH_2COOH$, and is thus closely related to taurine—CH_2SOOH,CH_2NH_2; in fact, cysteine can be converted into taurine in the laboratory.

Protein Metabolism.—Considerable changes have recently taken place in current opinion on this subject. Not only have new ferments acting on the foodstuffs been demonstrated and an entirely new set of bodies called "hormones" been described, of which the duodenal "secretin" is a type, but the katabolic processes through which protein bodies normally pass have been shown to be much more extensive than was formerly imagined. The intermediate products of protein katabolism are still but imperfectly known; it seems clear, however, that while certain molecules are passing through the various disintegration stages of proteose (albumose) and peptone (polypeptide), others are split up directly into their simple end products—the amino acids. In the same way the amino-acids are also constantly being split off from the albumoses and peptones. There would appear, therefore, to be various paths for protein katabolism. The molecule may either take the high road via primary albumose, secondary albumose, peptone (or polypeptide), or may take a short cut at any point on the route and arrive at once at its amino-acid termination. It has been observed that the

tryptic and intestinal digestion is the one which carries protein to its final stage, gastric digestion going no further than the production of polypeptides. Food, however, which has been acted on by the gastric secretion, is more completely and surely attacked later on in the small intestine, so that surgeons should not too hastily conclude that the stomach is a mere developmental relic, and of no value to the organism.

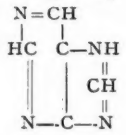
The primary albumoses (hetero- and proto-albumose) differ in the amino-acids produced by their hydrolysis, hetero-albumose giving rise to much tyrosin and glycocoll, proto-albumose to much leucin. The primary albumoses never give rise to a carbohydrate group, which, however, is found in a form of secondary albumose known as syn-albumose, which is therefore supposed to be split directly from the protein molecule.

The final cleavage products of protein have been shewn in dogs to be capable of supporting life and maintaining the nitrogenous equilibrium of the animal.

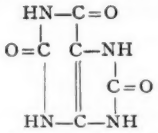
The amino-acids are probably carried to the liver by the portal blood, but technical difficulties have hitherto prevented the complete proof of this. Ammonia, a still more simple cleavage product, has, however, been demonstrated to exist in excess in portal blood. Some portion of the amino-acids are probably resynthesised into tissue protein in the liver, but the greater part is apparently there converted into urea and excreted by the kidneys. A special ferment, "arginase," has been isolated from the liver which can decompose arginine into urea and ornithine.

Urea may be regarded as derived from protein in three ways. The principal precursor is glycocoll, CH_2NH_2COOH, which, though not found to any extent in true proteins, is abundant in sclero-proteins (albuminoids) such as gelatine. The second way in which urea can be found is from the guanidine group, which we have seen occurring in arginine. Thirdly, it may result from the oxidation of uric acid in the liver and tissues. Uric acid itself is an oxidation product, being tri-oxypurin. The purin bases from which it is formed are derivatives of the nucleo-proteides of all nuclei (the chromatin substance of the histologist), through the intermediate stages of nuclein and nucleic acid.

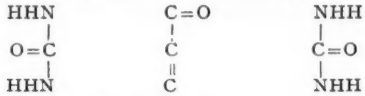
The purin bases are a group of bodies derived, chemically speaking, from purin, a substance which does not occur in the animal body. It is a double ring compound—



and from it oxidation compounds and substitution products can be formed. The best known is tri-oxypurin, or uric acid—



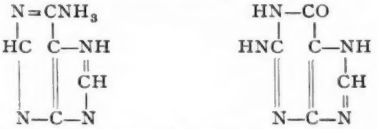
If the two side columns are split off, and additional hydrogen absorbed to saturate the nitrogen (triad)—



two molecules of urea are produced.

It seems probable, however, that the uric acid found in mammalian urine is mainly derived from nucleo-proteides, and does not represent an incomplete stage of urea formation from protein. In birds, where uric acid is the main nitrogenous excretion product, its formation is probably not on analogous lines, but due to a special synthetic process.

The amino-purins, adenine and guanine—



have been held to be the toxic intermediary products responsible for the symptoms of goutiness. The oxidation of purin bases into uric acid is probably the work of a special ferment, and the absence of this ferment may be the most important pathogenic factor in that condition.

THE LONG FOX LECTURE:

THE THIRD ANNUAL LECTURE ARRANGED BY THE COMMITTEE OF THE LONG FOX MEMORIAL,
DELIVERED IN THE MEDICAL LIBRARY, UNIVERSITY COLLEGE, BRISTOL, ON DECEMBER 6TH, 1906.

F. RICHARDSON CROSS, M.B. Lond., F.R.C.S., *in the Chair.*

BY

ALFRED J. HARRISON, M.B. (Lond.), *Consulting Physician, late Physician to the Dermatological Department, Bristol General Hospital,*

ON

DERMATITIS FROM WITHOUT AND DERMATITIS FROM WITHIN.

IT is with feelings of great distrust in my competence, but with deep regard to the honour that has been put upon me, that I venture to come before you to-day. The trust—if I may so style it—which has established this "Long Fox Memorial Lecture" has taken upon it to arrange for an annual address, the subject of which shall have a very marked professional bearing, and which, as far as it practically can, shall enhance the good of the profession by dealing with some subject of more or less utility to the hard-worked members of it, and amongst these the general practitioners must be very prominent, for whatever helps them must do honour to the profession at large, and we shall best perpetuate the memory of our deceased friend by keeping these important objects in view.

Edward Long Fox was a man of large heart and general philanthropy—all who knew him must feel this—and personally, I can speak as one who has been the recipient of much kindness and hospitality from him, and has often been present also at those large and interesting gatherings of his professional brothers which he loved to assemble. Never was he seen to better advantage than when surrounded by such an assembly,

for his heart's best sympathies were there. How often do we say and feel with our late Poet Laureate—

> "Oh! for the touch of a vanish'd hand
> And the sound of a voice that is still."

But if that voice is still, the spirit that animated that voice can never be still. It is with us now, and will be ever with us when we are endeavouring—feeble though the effort be—to advance the interests and knowledge of that profession which he loved and adorned.

The subject which I have chosen is one which is closely connected with what I may term, my more especial department of medicine—dermatology, and which has interested me very much during recent years. It can be best summarised in the terms, "Dermatitis from without and dermatitis from within," or, in other words, irritation or inflammation of the skin caused by bodies applied to or in close proximity to the surface of the skin, and the effects produced on the skin by irritants taken within the system, either by the stomach or by the lungs, or injected into the deeper tissues of the skin.

Now this is a very large and comprehensive subject, for in its full bearings it would seem to embrace all the exanthemata, the erythemata, erysipelas, most eczemas, some new growths, lupus, tuberculosis, leprosy, elephantiasis, the action of toxines, and parasitic affections, whether produced by vegetable or animal parasites. All these cannot be dealt with or even touched upon, for if they were the time allotted for this address would be very insufficient, and so far as I am concerned, would leave behind a lasting memorial of stuffiness and confusion, to say nothing of exasperating your patience beyond all bounds. I shall therefore limit my remarks to bringing before you a few cases which I have come across in my own experience, or that medical friends have had in their career of work and which I may have seen in conjunction with them, or they have kindly permitted me to use to exemplify my subject.

I do not wish to burden you with a description of the structure and physiology of the skin, but I want to draw your attention to one view. We know the skin is a very important and extensive covering of this complex body of ours, but it is

also the parade ground for a large number of complaints. Think how many things we recognise or attempt so to do by their behaviour or manifestations here, and it can therefore be no wonder that with the best and most experienced of us doubts and confusions should often arise. If we look at a body of infantry or cavalry parading on their exercise ground they appear to us wonderfully alike at first glance, and yet every one of these individuals has a separate identity and very marked personal differences, and the same arguments apply to the appearances of various affections on their parade ground—the skin. Let me very briefly remind you that this said skin has its own peculiar structure, its own nerve endings and vascular supply, and that it is complicated by an enormous number of glands and hairs, each and every part fulfilling its own special mission, and yet being implicated in derangements and diseased processes, whether invaded, in the first instance, from within or from without, or in both ways. It is said that a good shepherd will recognise each individual sheep in a large flock. Let it be our province as shepherds of more valuable sheep to endeavour to name every pathological process which may display itself, however confusedly, upon the human skin. This accomplished, many things which are now obscure will become as clear as daylight.

The surface of our skin is not very irritable, it will stand a fair amount of friction in health without any serious resentment; but in certain individuals, coupled with some peculiarity or idiosyncracy, temporary or more lasting, a very little irritation will be followed by very marked symptoms. A patient will come before you complaining that the face flushes very much if it be rubbed only moderately after washing or bathing, that an uncomfortable redness will come on and continue with more or less persistence, or that a slightly over-heated room will produce similar symptoms.

Many years ago a young fellow, in the early teens, E.G., quite healthy-looking, came to me at the Bristol General Hospital, complaining chiefly of these uncomfortable symptoms. He was an active young fellow, very fond of games and swimming, but if he did either his face and the skin of his body

would become very red and hot, and then his companions would laugh and poke innocent fun at him. Could I do something for him? He had a younger brother who suffered much in the same way. Their general health seemed good, and there was nothing unhealthy or particularly trying connected with their occupations. I tested the reaction of his skin, and I found out that if I traced out his initials, E.G., on his back over the shoulder-blades with the blunt end of a penholder, the following manifestations took place. Very shortly a diffused redness would appear, the surface of it would next fade away and contract, leaving the letters as marked red lines, but very slightly raised. Special blood vessels had been irritated and became congested. The congestion increased, and red wheals formed. A little later the redness began to pale, but was succeeded by very marked white wheals. The red globules of the blood had passed on, but serum had been poured out, and gradually the white wheals became very evident to the eye, and so discretely prominent that a blind man would have no difficulty in deciphering the letters by touch. In about a quarter of an hour or longer the whole thing would have faded away, and "left not a wrack behind." From time to time I have examined a large number of these cases, men and women, who complain of flushing and burning of the face when they go into hot rooms or drink hot liquids, all subjects of this condition, to which the following terms have been applied: "Dermographia," "Auto-graphia," and "Factitious Urticaria"; and from my experience I should be inclined to lay down the following rule: That the slower the congestive process, the more marked are the wheals, and the more persistent. When there are no symptoms of disturbed health, treatment of these cases is not very satisfactory; and with regard to these brothers, I did not succeed in doing much, but later on they got into the Navy, and in a short time they got rid of their skin trouble; and when last I heard of them they were fine, manly young fellows, excellent types of our best-looking and healthiest sailors. I used the term "idiosyncracy" advisedly just now, and I have occupied some little time in details because this peculiarity is one of the simplest forms of irritation of the skin,

much simpler than that produced by the common stinging nettle on most skins. We can hardly term it "dermatitis," but it and some kindred conditions, will be followed by dermatitis, caused by the rubbing or scratching of the skin, which many individuals seem unable to restrain. You might be inclined to assume that a skin so prone to be irritable would respond to many other irritants. This by no means follows as a rule; such persons are not especial victims of flea, bug, or mosquito bite, nor of irritant foods or drugs taken into the system. There is another lesson to be inculcated. Supposing a boy with this "dermo-graphia" received a caning—and it need not be a severe one—from his master, and the boy went home shortly afterwards. Picture an impetuous father or an over-anxious mother examining the child. What indignation and feelings of resentment would be stirred up. I well remember the late Sir Wm. Gull relating such a case, and those who knew him may remember how dogmatic he could be. He was concerned where a schoolmaster was accused of having unduly and cruelly chastised a boy. Bringing his knowledge and acumen to bear, Dr. Gull showed very graphically that the boy was the subject of dermo-graphia. Hence, you see, there is a medico-legal side to the condition.

Take another case, which you will shortly see advances a little this state of irritable skin. Miss F. had very marked irritation of the hands, arms, neck, and face, which made her life—a very active one—rather an uncomfortable one. Autographia was very marked, She could initial her name on her arms in a very palpable manner. There was some disturbance of the digestion, but really very few morbid symptoms. She improved slowly, but uncertainly. She would vary without any obvious cause. In the end we discovered that what kept up the irritation, but was certainly not the initial or sole cause, was the presence in a conservatory, where she was very fond of going and of looking after certain favourite plants, of the Primula obconica. A change from home, and thus complete absence of the obnoxious plant, soon re-established her usual healthy condition. Some persons are affected by one thing and some by another, as the long list of irritants on the diagram

before you must indicate, and these and similar conditions go a long way to explain those individual peculiarities where various foods and drinks, and drugs and plants, etc., cause very peculiar and very often alarming symptoms. The proverb, "What is one man's meat is another man's poison," is often strikingly illustrated. The poet Cowper said—

> "Skins may differ, but affection
> Dwells in black and white the same."

But he was not a dermatologist, otherwise he must have said—

> Skins do differ, and affections
> Differ too, by no means
> In the black and white the same.

Some years ago I was asked to see in consultation a builder's wife who had suffered for several months, off and on, from the following symptoms. She lived at Westbury, in a new house which her husband had recently built for their own occupation. Apparently whilst in fair health Mrs. M. would get great irritation of the hands, face and neck; they would become very red, and the face and eyes very œdematous, and so much so that the condition was regarded as of an erysipelatous character, and especially as there was sometimes a distinct rise of temperature and even restless nights. Under treatment and rest she would improve, and then apparently without any cause these same symptoms would recur. These relapses went on for some months. Drains were suspected, but there seemed no fault with them; and no article of food or drink could be singled out as the cause. On one occasion shortly before I saw her this took place: she had had an attack, and was kept up in her bedroom for several days as a wise precaution, and was apparently well again. In the midst of all these sanitary surroundings, where everything had been carefully done to promote and continue well-being, another severe attack came on. Congratulation was succeeded by dismay and despair. What could be at the bottom of this dark tribulation? When I heard the history of the patient, and noticed her symptoms, I thought to myself, "Surely this irritable condition of hands and face is brought on by some plant or drug," and the Primula obconica seemed to

loom out of the obscurity. I saw no such flowers about her room. Had she a greenhouse? Oh, yes! and she was very fond of going there, up in the garden, when she was able to do so. We went to the greenhouse, and there were many pots of the objectionable primula. But what about the attack in the bedroom? A dear old nurse looked after her, and one day said to her, "Why, mum, as you are not allowed to go out to your greenhouse, and you do love them flowers, I'll bring them to you." She did, and amongst them some of the Primula obconica. The prescribing of a little soothing lotion, combined with total banishment of the exciting cause, effected a complete cure, and the laying of all apparitions of dismay and despair. I saw her medical attendant quite recently, and he assured me she had had no recurrence of the attack. Recurrence, more or less, will happen after some irritants, even when the exciting cause seems absent, but this point shall be brought out by and by.

On October 20th this year an exceedingly instructive case was related by Dr. Pope, of Winnipeg, in which a lady of 64 had several recurring attacks of what was supposed to be very severe eczema, but which were really caused by Primula obconica! I could relate many more cases of dermatitis caused by this plant, but I must not weary you, and they would throw no more additional light on the subject. They are not very unfrequent, and every now and then the busy practitioner may come across a case: he is the man to do so. He needs eyes everywhere, and a mind as alive as possible to meet all kinds of subtle attacks! Some years ago a would-be critic—non-medical, of course, but with a sense of knowledge far beyond the requirements of the average medical man—wrote a book (it came out about the time of a small-pox scare) to show the uselessness of vaccination and revaccination. His statistics seemed plausible and his arguments at least specious. He had drawn his conclusions without making allowance for different ratios of population. For example, A was a town renowned for its careful vaccination, whilst B was notoriously careless, and yet A had as many cases of small-pox as B. So it might have, so far as merely numbers of cases were

concerned; but if the population of A was ten times that of B, there ought to have been at least ten times the number of cases in A. We are not going to pursue this question more than to say that he termed vaccination and revaccination the "golden calf" of Harley Street. I should say, if any plant deserved the simile, Primula obconica was the golden calf, or gold-laying hen, of dermatologists!

The long list of plants which are capable of causing "dermatitis" shows that they are many in number, and as more exact knowledge goes on the number must be increased. At least two species of "Rhus," or "sumach," belong to this category—the "venenata" and "toxicodendron." In America, where the plants and trees grow largely, cases of poisoning are not unfrequent, but in this country they are very much rarer. The following is a very interesting case, and for which I am indebted to Mr. Arthur Prichard, who read a paper on the subject of poisoning by Rhus venenata before our Medico-Chirurgical Society some fifteen years ago.[1] The victim was a curate at Bradford-on-Avon, aged 25. His study was much overshadowed by a fine specimen of the tree, which grew in the vicarage garden. Hearing that a gardener, three years before, had suffered from blood-poisoning after cutting off a limb from the same tree, he started on the work with a certain amount of misgiving, and with a good deal of caution, working at the tree for a short time every day for a week. The old gardener helped him the first day, but he fell ill with severe dermatitis, and was bad for a week. At the end of a week the curate got the tree down. He noticed that the sap, which was very profuse, made his hands black (many of the sumachs are used for tanning and dyeing purposes), and he subsequently wore gloves. One of the days some of the juice touched his face, and he wiped it off with his gloved hand. The next day he had three lines of redness on his cheek, which became worse and worse for several days, producing very much the appearance of erysipelas of the face. A few days later he was so ill that he had to keep his bed. The arms, genitals, and thighs were attacked—first by a red rash, then bullæ appeared,

[1] *Bristol M.-Chir. J.*, 1891, ix. 22.

suppurated and burst, and large crusts formed, the exudation from under them being very profuse. Fortunately he was able to take nourishment well, and his strength kept up. His temperature was never 103°, nor did his pulse exceed 112. He was not convalescent for more than a month, and there is no doubt his life was in peril at one time. Dr. J. C. White, of Boston, America, has collected notes of many cases, and amongst them the case of a young lady who got a recurrence in the spring from wearing the same dress she had worn during an attack in the summer. Arnica had a great repute some years ago, and was said to be almost a specific for healing and dispersing bad contusions and sprains. Like many other vaunted remedies its reputation soon vanished, and several hospital surgeons and physicians tested very carefully its merits or demerits, and amongst them was the late Sir Alfred B. Garrod, who showed that any good there was in its application arose from the spirits of wine which was used in making the tincture; nay, more, that a lotion with the amount of spirit was often more efficacious than when combined with arnica; and there was sound reason in this, as the following case—and there are many such-like—surely shows.

Mrs. W., aged about 58, very healthy and robust, last July, sprained her left ankle very badly by slipping down some stairs. She had a great deal of vitality and brain energy, and like many such persons, disliked quietness and confinement, so she began to get about as soon as the very painful swelling began to subside, and no great harm resulted except that the ankle gave her much discomfort at times. To alleviate matters—for the intention was good—a would-be-wise lady friend recommended her to apply some tincture of arnica to the part. This she did, and being a lady of strong measures, she "slopped" (the expression is hers) a quantity of the so-called remedy over the parts several times, and then one very hot Sunday walked twice to a church—a good distance—to hear a favourite preacher. The next day the ankle and parts around became swollen and painful, dermatitis was set up, and spread all up the leg, on to the body, the chest, neck and face, and the arm, involving the whole of these parts, and also invading the right half of the

body, but in a much less degree. This was about the middle of September, and it was then that I saw her. Her face was red and swollen, the neck and chest, and in a less degree, the back, was covered with a red rash which, from its appearance, might very easily have been mistaken for that of scarlet fever. The humeral portion of the left arm was affected, and the right arm slightly, but the *pièce de résistance* was the left foot and leg, which were greatly swollen and sodden, the surface of the skin being broken down here and there and discharging a viscid fluid. She was hot, restless and feverish, and highly dissatisfied with the treatment she had been induced to try. Possibly what aggravated her condition was a gouty inheritance, for before she quite recovered she suffered from gouty manifestations. Soothing lotions and rest in bed soon began to relieve her, but several weeks elapsed before she could be pronounced well, and I do not think she is likely to believe in the soothing virtues of arnica again!

Then there is another plant much more familiar to us than arnica, which in many of its species is very well known to us in this part of the country, for the ampelopsis lives in this part of England, and gives a glorious radiance of colour to a great many of our houses, from a pleasant greenness in spring-time, a darker luxurious greenness as summer advances, to bidding us farewell in the autumn, in all the hues of russet red and brilliant vermilion. Well, every now and then you come across cases where—and especially in the autumn, when probably gardeners handle the leaves more—great irritation is set up on the hands and fingers, and then, by contact of the hands upon the face and neck also. I have come across many of these cases both in this locality and in Kent, and I expect they are not unfrequent where the genus flourishes, and the one most concerned seems to be the A. quinquefolia, or Virginian creeper. These plants should be borne in mind when dealing with cases of so-named obscure eczema. They are manifestations of true plant "dermatitis."

Only this summer I take to myself the credit of having laid another "apparition" of irritation, but then I had a very intelligent medium to work with. I was attending a patient

at Westbury-on-Trym last summer, Mr. S., in consultation with his medical man, for an attack of pityriasis rubra, which complaint I shall have to refer to shortly, and one day when he was convalescing he told me that nearly every year, in the late summer or early autumn, he got a curious irritation on his hands, the right more than the left, and he suggested that it might be caused by some plant in his garden, because he was very fond of working about amongst his conservatories and flower-beds. Everyone who knows Mr. S. must know what an enthusiastic and intelligent gardener he is. I mentioned several likely plants which might be the exciting cause, but he thought it could not be any one of these. I said, "Well, you are an observant man, and between us we ought to find out the enemy!" I saw him a few weeks ago, and by careful observation and elimination he had found out the culprit. He had then the remains of an irritation on his right thumb and slightly on the first and second fingers, which had been much worse. "The skin had been killed," he said, and no formula of words could express the condition better. He took me into his garden and showed me many specimens of a calendula—Tagete's marigolds, and especially one—the Legion of Honour. It is an erect bushy plant, six to eight inches in height, a very free flowerer, ornamental, and rather strong smelling. Some properties in it acted as an irritant to his skin, and the reason why the right hand was affected more than the left was because he was in the habit of pulling off the dead or drooping flowers with this hand. So this plant may very well and reasonably be added to the list of irritants.

Then there are many people who cannot handle tomatoes and chrysanthemums without getting irritation of their hands and secondarily of other parts. I saw a very intelligent old gardener, who is a victim to chrysanthemum rash. Whenever he handles them he gets redness, swelling and œdema of his hands and face. The Atropa belladonna is another irritant to some persons, but more especially is this the case when a liniment or ointment of belladonna is rubbed on the skin, or when the drug in some of its various forms

is taken internally. The rash usually produced is an erythematous one, very much simulating the rash of scarlet fever, and in the early days of that curious doctrine, *Similia similibus curentur*, belladonna was to be the prophylactic against scarlet fever. However, that bubble was soon burst. Had it not, what a rivalry there would be in these days, when there is such a long list of drugs and toxines which are capable of producing very good imitations of scarlet fever rash!

The oil of copaiba is a well-known rash producer, but I do not wish to dwell much upon it except to record this, that at the hospital, many years ago, I saw an instance of this rash—I think the most marked I have ever seen—in a girl who worked at some capsule manufactory in Bedminster. She was a fair-haired, fair-skinned girl, very healthy and with a very enviable condition of skin; but the amount of rash she displayed over arms, body, face and legs was very remarkable—blotches and wheals. She assured me, and I had no reason to doubt her word, that she had never taken copaiba. I think she gave up this work and got employment in other processes. Very much akin to this is the case of a girl, aged about 18, whom I admitted into the hospital. She had a lovely white skin, but it had become deformed by an extensive erythematous rash caused by use of some of the lower grades of petroleum. She was employed at some well-known rope works in Bristol, and only quite recently had this substance been used. She was in the hospital some time because she got several relapses, apparently without any renewing cause. We tried to exclude all possible fallacies, but I have known this occur on several occasions when all exciting causes could apparently be excluded.

I am sure you will expect me to say something about "iodide" and "bromide" rashes, because these happen not unfrequently, and in their more advanced forms present some of the most severe symptoms of "dermatitis" known, when we have excluded virulent small-pox, *i.e.* small-pox unmitigated by the efficacy of vaccination. In these drug manifestations you may have great disturbance of skin tissues

and swellings and tumours even to a very disfiguring degree. The outbreak may be spotted, papular, vesicular, pustular, petechial or bullous, or a combination of several of these forms, and even sub-cutaneous abscesses may show themselves. They are chiefly developed upon face, neck, trunk and arms, but no part of the whole surface is exempt, and it is in scar tissue following wounds that rashes first show themselves in a very marked way; the case may even end fatally.

Silver salts, especially the nitrate, when taken for some long time will affect the skin, but the "dermatitis" strictly speaking must be slight, and these cases are not very likely to be seen now, as other drugs have superseded silver nitrate, and if silver salts are given or used externally, such as argentol or protargol and some others, these and the solutions are said not to be precipitated by NaCl, or to cause coagulation of albumin.

Chrysarobin is another drug which I can speak about as a skin irritant. It is used very advantageously in many cases of obstinate psoriasis, and in one case I remember, an enthusiastic patient, notwithstanding warnings, employed it too vigorously, with the result that she was the best-marked example of erythema of the thigh, abdomen and chest I have ever seen. Before leaving this part of the subject there is one observation, inference or deduction, may I call it, I should like to make. There is not unfrequently considerable discussion about dieting in eczema, or so-called eczema. I do not wish to deride or diminish the importance of this in many cases, but I have seen, and I am sure a great many of you have seen, people who have been precluded from taking this or the other thing in their dietary, cut off from sugar, certain meats, certain fish, alcohol, tea, coffee, fruit, etc., until life seems to be scarcely worth the living; but with it all the complaint seems to get rather worse than better, and they themselves get weaker and weaker, and more and more miserable. Might not some of these cases come under the head of some subtle existing and often persisting irritation corresponding with some of the drug or plant or toxines we have been regarding? Eczema is truly "dermatitis," but "dermatitis" may not be eczema!

Many years ago, soon after I was qualified, I went out as ship's surgeon to Tasmania and back, and amongst many things we collected at sea—a sailing vessel gives you so many more opportunities than a rapid, rushing steamer—were several specimens of the "Physalia utriculus," or Portuguese man-of-war. They are not uncommonly seen in fine weather in warmish waters. They are composed of a large, float-like body, beautifully tinted—a kind of swimming bladder—and beneath this are a number of tentacles. Well, one day we had collected several of these interesting creatures, and we put them into a child's bath, and kept them in it for some time, and then tossed them out to sea again. A young infant was washed in the bath that evening, and very soon afterwards was tormented with severe nettle rash, or urticaria. No doubt the bath had not been thoroughly cleansed, and some excretions from the "Physalia" must have been the cause. You know that many jellyfish are capable of doing the same thing. Well, this brings me to make a few remarks about caterpillars. Many species are capable of setting up much irritation of the fingers in children who handle them, and this summer I came across an amusing description of such cases. I am quoting from the *British Journal of Children's Diseases* for last July :—

"Wednesday, June 20th, was a red-letter day for the Chelmsford Rural Council and their medical officer, for the news had been flashed abroad on the wings of the mode of motion, known as electricity, that a new disease had been brought to light in Essex. It is permissible to employ the metaphor of wings, for this wonderfully novel complaint, called 'Caterpillar's Rash,' had been traced to caterpillars. . . . There is a little mystery about the Essex disease which must first be cleared up. In the published paragraph it is referred to as caterpillar's disease, but in the account of it the public is gravely informed that 'twenty children were infected with it,' which statement makes things still more complex and the brain to stagger. If caterpillars in Essex have got a rash, then it is high time the matter should be seen to and dealt with sternly but firmly. A society for the prevention of rashes among caterpillars should be at once started, and

money collected, say, from the butterflies of fashion. Or some budding Pasteur from the Lister Institute should immediately take a parliamentary ticket (return) to the locality in Essex suffering from this plague and investigate this new silkworm disease. On the other hand, the caterpillars may be enjoying their normal health, and not affected by 'Dermatitis larvæ Chelmsfordii' at all, and the children turn out to be the victims of the complaint. Now to business. Over fifty years ago an industrious German investigator, Will by name, analysed the delicate hairs of various kinds of caterpillars, and stated that he had found formic acid in them, which he asserted was at the bottom of the mischief. Since then many others have worked at the subject, and contended that the irritating substance found in the hairs and in the glands situated at their roots was allied to cantharidine. . . . It will interest the Chelmsford Rural Council to know that the caterpillar of Cossus ligniperda can elegantly expectorate a caustic greenish sputum of pungent odour to a distance of two feet, As to the watery eyes mentioned in the Essex epidemic. Meixner has written a dissertation on caterpillar ophthalmia. Further, the caterpillar of a common or garden butterfly, Pieris brassicæ, has given rise to colic, salivation, stomatitis and other alimentary symptoms when swallowed by cows and horses. According to Livingstone, the Bushmen employed a small caterpillar to poison their arrows with. Again, the silkworm caterpillar excretes an irritating substance well known to the workers in silk factories."

These rashes produced by caterpillars, either directly or indirectly, are very closely allied to those manifestations which are caused by the antitoxin of diphtheria and toxins used or developed in what is termed serum-therapy. In carrying out these treatments rashes are often developed upon the skin, notably by the antitoxin of diphtheria and by injections into the skin of tuberculin. The sub-committee appointed by the Clinical Society made a short time ago a very interesting report on the rash and some other effects produced by the antitoxin of diphtheria. Out of 633 cases reported upon, an erythematous or urticarial rash, in some

cases followed by petechiæ, came on in 220 cases, or in 34·7 per cent. In most of the cases there was distinct pyrexia, and in the majority of cases the rash appeared to have a definite relation to the pyrexia, but in a few cases the rash preceded or succeeded the rise of temperature. Pains in the joints happened in some cases.

I have now given you many instances of "dermatitis" caused by more or less external agents, and others which operated more especially from within the system. We contemplated early in this address a marked irritation of the skin —those peculiar conditions known as "auto-graphism," or "dermo-graphism,"—and so on to undoubted instances of "dermatitis"; but before concluding my remarks, I wish to say a few words about a rare, but often very severe, and occasionally fatal, form of dermatitis, known as "pityriasis rubra," or by a still more expressive definition as "dermatitis exfoliativa." When fatal it is generally in consequence of the sequelæ which are associated with it. It is certainly one of the most extensive diseases of the skin known, and the exfoliative, rather than the bran-like shedding of the epiderm, is more typical of a tree shedding its leaves, as the scarf-skin comes away in large flakes. There the parity of the analogy must cease, because when once a tree has shed its leaves there are no more formed until another season, whereas the skin is so active in its reproduction of epidermis, and this activity may extend from the crown of the head to the sole of the foot, that there seems no end to the process, every part, even sometimes the hair and nails, being involved. So great desquamation is there that in the course of twenty-four hours a patient thus afflicted may deposit on his bed, or amongst his clothes, and on the floor of his room, as much as three or four pints of scales. A French writer says, "The patient is engaged in the labour of stripping himself involuntarily of his epidermis." At the commencement of the disease the skin becomes very hyperæmic, hence the term "rubra." This complaint may arise as early as the second year of life, and it has been met with at eighty-four years of age; but its most marked incidence is between forty and fifty years, and more males than females are affected by it.

In severe cases—for it has its phases—the hair may fall off and the nails may be thickened, and they too may be shed. When fatal—and the percentage of deaths is rather large—the fatality is generally caused by pneumonia (septic perhaps nearly always), bronchitis, or albuminuria, one or all, or even gangrene of parts may result. However, I must not go into a full description of this very interesting disease, but I have introduced the subject because I want to elucidate, from my point of view, an important factor in this disease, and in several others where there can be no want of unanimity of opinion.

We have spoken of peculiarities—idiosyncrasies—so that, comparatively speaking, only a few persons may be affected by certain external irritants or things taken internally, and we speak of pre-cancerous stages of cancer and pre-fungoid stages of that rare skin affection, mycosis fungoides, and some other conditions, in which the skin seems to pass through certain preparatory or preliminary phases, and in this way a "nidus" is made for various micro-organisms to develop in—nay, sometimes to revel in. Well, my own idea is that pityriasis rubra or dermatitis exfoliativa never begins absolutely as a primary disease. I have seen many cases—I use the word "many" advisedly—of this comparatively rare disease, but in every instance there has been a preliminary something before one could say the incidence of the complaint had commenced. It is but fair to state that several writers give it a "primary" standard occasionally.

We spoke a little while ago of certain changes that we noticed in the skin—physiological rather than strictly pathological - in that evanescent condition, dermo-graphia. Let us now go a few steps further. What happens in eczema erythematosum? Why should we get the peculiar reddened surface, the thickening and general puffiness of the skin, with the accentuated marks, that are so characteristic of this condition? I will now quote from a most interesting address given last May at St. John's Hospital, London, for Diseases of the Skin, by Prof. G. Sims Woodhead, of Cambridge: "On histological examination we find first of all that owing to the atrophy of the stratum granulosum and the filling of the spaces between or

beneath the epithelium with fluid, the colour of the massed blood in the distended vessels of the corium shines through very distinctly, and we have the peculiar redness accounted for. We have, further, evidence of inflammation in the presence of escaped leucocytes accumulated in considerable numbers around these distended vessels, and of a more chronic inflammatory condition in the proliferation of the fixed connective tissue cells, some of which are rounded and embryonic, others of the more regular connective-tissue type. We have evidence of changes in the walls of the vessels, and perhaps also in the walls of the lymphatics, and of an impaired activity of the endothelium of these structures in the œdematous condition which assists very materially in causing a swelling of the parts; all this formation of new tissues and accumulation of fluids must necessarily lead to thickening of the skin, and we have at once an explanation of the naked-eye appearances. Moreover, we are led to look for (and to remove) some *irritant substance or condition* (the emphasis is mine) which may give rise to these histological and pathological changes so characteristic of a progressive inflammation set up by an irritant usually of an organised nature." Let us take another example. I am still quoting Prof. Woodhead: "In certain forms of eczema we see the results of the accumulation of the horny layers filled with coagulated albumin in which staphylococci can multiply and give rise to their products which, absorbed into the cutis, set up a series of changes well recognised by the expert." Unquestionably, bacteria and some of the higher fungi exert great influence in the production of skin diseases. "Furuncles, carbuncles, ringworm of various types, may all be grouped under this heading, whilst the acute inflammations of the skin, especially, in all probability, where vesicles are present, come, as regards causation, into this group. We have still to fathom the cause of varicella and variola, but these are probably due to the action of spore-bearing organisms which, making their way from the blood and lymphatic vessels to the lymph spaces of the skin, set up there the changes characteristic of these special diseases."

Purpura, tuberculosis and cancer of the skin, erysipelas,

elephantiasis, and some other affections doubtless come into this class. "We find that this inflammation of the true skin is an essential part of most skin diseases, and it is interesting to note that it may be induced by irritant matter introduced either from the free surface or by the lymph and blood vessels from within, and all who have been occupied in the treatment of skin diseases are invariably impressed by the interdigitation of these two factors in their production." Do not these conditions assist us towards the explanation of many of the instances of dermatitis we have been reviewing? and is it to be wondered at that errors as to causation should sometimes arise?

And now, gentlemen, whilst my subject is by no means exhausted, yet I feel that I have trespassed upon your time and patience long enough. I have endeavoured to place some points upon a more intelligible basis, and if I have been successful in doing so, though in a small and humble way, I shall be very content, and I shall feel that I have done something—have placed a small stone upon our pathway of knowledge and a memorial tribute upon the monument of "our old and faithful friend."

Some years ago I spent several weeks in that very interesting and old city of Copenhagen, and chiefly with the object of studying the "Light Treatment" under the guidance of that great and able teacher, the late Professor Niels K. Finsen, and a very delightful and intellectual time I had; and during my stay the new Light Institution was opened. The objects it had in view were great, but their new University took a still higher flight. Over the gate of the principal entrance are a crest and motto. The crest is an eagle with outstretched wings, and its head turned up to heaven. The motto is this: "*Cœlestem adspicit lucem.*"

The Psalmist said ages ago: "For with Thee is the well of life, and in Thy light shall we see light." It is for increased light we are ever yearning and straining our eyes, and for this light our departed friend was one of the most eager searchers.

Progress of the Medical Sciences.

MEDICINE.

The use of sodium citrate in the feeding of infants was suggested thirteen years ago by Wright,[1] who saw the practical importance of the fact that precipitation of the calcium salts in cow's milk rendered the casein clot lighter, and retarded its formation. Instead of following previous experimenters in the quite impracticable use of sodium fluoride he employed citrate of soda, and found that the addition of .5 per cent. of this salt completely inhibited the coagulation of milk by rennet, without affecting the taste. It is interesting to note in passing that the same writer[2] has attributed the frequency of venous thrombosis in enteric fever to a diet exclusively composed of milk, and therefore rich in calcium salts. Here, also, he suggests the addition of citrate of soda to the milk in order to decalcify it. Solt,[3] of Riga, has turned this hæmostatic action of milk to practical account by giving it in large doses, by the rectum if necessary, in cases of hæmoptysis, hæmatemesis, and other forms of internal hemorrhage, with very satisfactory results.

Wright's suggestion as to the use of citrate of soda in infant feeding seems to have escaped notice until two years ago, when Poynton[4] published the results of his experience in the out-patient department at Great Ormond Street. A more recent paper[5] shows that further trial has only served to confirm his good impression as to the value of this measure. It is useful in (*a*) the milk dyspepsia of infancy, (*b*) the weaning of healthy children from human to cow's milk, (*c*) rapid increase of the proportion of milk in mixtures with various diluents, and (*d*) it is said to avert the occurrence of scurvy. In the treatment of gastro-enteritis it has proved useless.

Immediately after Poynton's first paper came confirmatory data from France. Variot[6] spoke highly of the results he had obtained by adding citrate of soda to the milk of infants with irritable stomachs; Guyader[7] had succeeded in checking the vomiting of a child two months old by the addition of a drachm of 1 in 60 solution of the salt to each feed; and Ausset[8] also added his testimony to its efficacy in eleven cases.

During the current year three other writers have brought forward successful results obtained in the treatment of a large number of infants by this method. Shaw,[9] of New York, found

[1] *Lancet*, 1893, ii. 194. [2] *Med.-Chir. Tr.*, 1903, lxxxvi. 1.
[3] *Therap. Monatsh.*, Oct., 1906. [4] *Lancet*, 1904, ii 433.
[5] *Med. Press and Circ.*, 1905, cxxxi. 369. [6] *Presse méd.*, 1904, p. 679.
[7] *Arch. de Med. d. Enf.*, 1904, p. 715. [8] *Pediat. prat.*, April, 1905.
[9] *Arch. Pediat.*, 1906, xxiii. 161.

that of twenty-two infants suffering from marasmus, dyspepsia, &c., seventeen gained weight satisfactorily while dieted on citrated milk, while five lost ground. The vomiting of chronic gastric catarrh was controlled, and curds disappeared from the stools. In a series of test-tube experiments which prefaced his clinical trials he found no other salt so satisfactory as a decalcifying agent; also that addition of calcium chloride to citrated milk was followed by the re-appearance of the objectionable bulkiness and density of curd removed by citration. An admirable paper by Wynn[1] constitutes, perhaps, the most complete contribution to the subject. There are, he says, a few infants whose stomachs are incapable of digesting cow's milk, the curd of which is very readily formed and very densely packed. To this excessive readiness of coagulation three factors contribute: first, casein constitutes six-sevenths of the total protein of cow's milk as against one-half of that in human milk; second, the casein of cow's milk contains an indigestible element, paranuclein, absent from human milk; and, third, cow's milk contains .17 per cent. of calcium salts as against .03 per cent. in human milk. These errors are mitigated though not removed by dilution; the casein clot still proves too dense for many infants, and causes pain and vomiting, with loose curdy motions. At this point the mother either substitutes an undesirable food or waters the milk down till it is quite insufficient for the needs of the child. Here it is that citrate of soda becomes useful; by precipitating calcium citrate it produces a slower coagulation and a more flocculent curd. The calcium thrown down is not, however, lost to the infant, but is presumably converted in the stomach into the readily soluble chloride. Wynn prescribes the salt according to Poynton's method, in aqueous solution protected from the growth of moulds by the addition of a few drops of spirits of chloroform. It is given in doses of from one to three grains per ounce of milk; the minimum dose is usually enough to begin with. The prescription should be so framed as to leave no calculation to the tender mercies of the mother or nurse; a simple method is to order a solution of such strength that one drachm has to be added to each feed. For example, if each feed consists of two ounces each of milk and water, the solution prescribed should contain two grains of citrate of soda per drachm. Wynn's cases, sixty-nine in number, fall into two categories: in the first, pain, wasting, vomiting and curdy stools are the indications for treatment, while the other class consists of children enfeebled by a diet of milk which has been excessively diluted to prevent its being "too strong for the baby's stomach." He has also used it in the weaning of healthy children, and in adults with gastric ulcer, pneumonia, and other diseases where plain cow's milk was not well borne.

Lastly, there is a paper by Cotton,[2] who has treated fifty

[1] *Birmingh. M. Rev.*, 1906, n.s. vii. 123. [2] *J. Am. M. Ass.*, 1906, xlvii. 1080.

infants with citrate of soda. Vomiting was checked, the stools became firm and free from curd (indeed, slight constipation is apt to give trouble), and a higher percentage of milk was tolerated. The method should not be abruptly discontinued, but gradually, by fractional reductions of the dose; the return of indigestion may call for resumption of the treatment. In only six of his cases did the method fail. From a small experience the writer of this abstract can bear witness to the value of the use of citrate of soda, particularly in the milk dyspepsia of feeble infants; there may be need for perseverance in spite of what seems to be a failure, for cases which are at first refractory will nevertheless yield to the treatment after a few days' persistence.

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The capacity of infants to digest starch has recently occupied the attention of several American writers. Kerley and Mason[1] gave barley gruel (barley flour boiled for an hour and a half) to sixty children all under a year old, partly as a diluent and partly as a substitute for milk. In all 324 analyses of the stools were made. In thirty-three cases the fæces never contained starch, while in seven starch was always present; and the writers conclude that of the sixty infants forty-one showed a good capacity for digesting starch, while nineteen were poor in this respect. Some of the starch may, of course, have been destroyed by fermentation, but this cannot have taken place to any great extent, for there was no great abdominal distension; and, further, the presence of dextrin in the stools of more than half the cases proved that at any rate a partial starch digestion had occurred. The same writers, together with H. A. Craig,[2] publish the results of examination of the stools of twenty-six breast-fed infants for the presence of a starch enzyme, twenty-two of them being under a fortnight old. In all, 161 examinations of fæces were made, with the result that the stools of every infant proved to contain something which converted starch into maltose; on an average $\frac{1}{20}$ grain of starch was converted by 1 grain of fæces. That this was not due to bacterial action was proved by filtering the fæces after agitation with normal saline and using the filtrate, proved sterile by cultivation, for the starch experiments; it had a very definite diastatic power. Stools passed before breast-feeding began contained the ferment, so it is not derived from the maternal milk. Extract of macerated pancreas from infants a day old yields a starch diastase (Moro), so the inference is that the average infant secretes a starch-converting ferment from the earliest days. Indirect confirmation is given to this supposition by the work of Lopez,[3] who fed twenty-five infants between two and six months of age with foods containing varying percentages of starch, and also with controls consisting

[1] *Med. Rec.*, 1906, lxix. 989.
[2] *Arch. Pediat.*, 1906, xxiii. 489. [3] *Med. Rec.*, 1906, lxx. 495.

of modified cow's milk and a highly saccharated food containing converted starch. Briefly it may be said that a little of the starch appeared in the fæces of the infants fed on starchy food, that their digestion was not upset, and that they put on weight. The control foods produced vomiting, diarrhœa and loss of flesh, especially that containing much sugar. Lopez therefore concludes that "young infants can and do healthfully digest starch."

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The discovery of the spirochæta pallida has given a fresh impetus to the study of **inherited syphilis**, and, among other points, to the investigation of the path of infection. Different workers studying different phases have found the organism in every stage of the way from mother to fœtus in utero. By Nattan-Larrier and Brindeau,[1] as well as by Wallich and Levaditi,[2] it has been seen in sections of the placentæ of infected women, lying in the connective tissue of the villi and also in the media of the arteries; none could be found in the thrombi of the uterine sinuses. More recently still, Ritter[3] has found the spirochæte traversing the wall of the umbilical artery of an infant born of a woman infected during pregnancy. Levaditi,[4] who made careful examinations of the organs of six infants dead of inherited syphilis, found spirochætes in great abundance in various parts of the body, but particularly in the liver, the organ to which the maternal blood is first carried. Further, he found that in those organs where the infection was most intense the morbid changes were most definite, namely in the liver, where there was an interstitial inflammation, in the lungs, the seat of "white pneumonia," in the adrenals, which had undergone "hypertrophy," and in the skin, where bullous and other eruptions were seen. Not only are the connective tissue and the blood-vessels attacked, but also the parenchyma of glandular organs such as the liver and kidneys. In the liver, indeed, spirochætes were in one case found engulfed within the hepatic cells; this observation derives peculiar interest from the fact that it was the only case examined in which the manifestations of syphilis had been delayed. The child, though born of luetic parents, was well till the age of two months, when a bullous eruption appeared and the child rapidly wasted, dying after a fortnight's illness. *Post-mortem*, spirochætes were found in the heart's blood, though a fortnight before they had been absent from blood taken from the finger; and, although they were plentifully sown throughout the liver, they were scattered through other organs much less thickly than in the other infants who died at or soon after birth. Levaditi therefore suggests that the delayed manifestations of syphilis are caused by infection localised to the tissues principally affected, while the acute

[1] *Progrès med.*, 1906, xxii. 86.
[2] *Ibid.* [3] *München. med. Wchnschr.*, 1906, liii. 2004.
[4] *Ann. de l'Inst. Pasteur*, 1906, xx. 41.

symptoms which lead to an early death are due to an acute dissemination of the spirochætæ throughout the body. Since the intensity of the morbid changes met with is in direct proportion to the number of spirochætæ present in the tissues, and since the organs are so thoroughly permeated by the infection, Levaditi concludes that the histological results produced by the organism are immediate and that no intermediary factor such as the diffusion of toxins need be called in to explain them. Two other points of practical importance were the observation of a phagocytic defence carried on by the macrophages of the pulmonary alveoli, and the presence of spirochætes in the kidneys and bronchi. From these latter observations it seems likely that the urine and sputa are potential carriers of infection.

Tobler,[1] stimulated by the discoveries of a definite lymphocytosis of the cerebro-spinal fluid in cases of tabes dorsalis, has performed lumbar puncture in seventeen cases of hereditary syphilis ranging from a few days to ten years of age. In fifteen of these a definite and unequivocal lymphocytosis was present, in two of them before any other clinical manifestations of the disease made their appearance; it is therefore possible that in doubtful cases a resort to lumbar puncture would prove a useful guide to early diagnosis and treatment by specifics.

CAREY COOMBS, M.D.

SURGERY.

Cases of **stone in the ureter** are now fairly frequently reported, and although the methods of diagnosis have been considerably improved upon of late, still great difficulty often arises first of all in stating that there is probably a calculus present, and secondly in locating its exact situation in the ureter. The X-rays have often been of considerable value, but a negative finding is useless, and the presence of a shadow may be misleading, as has been recently[2] shown, by the presence of calcareous deposits in the iliac vessels or lymphatic glands. Again, there is no uniform opinion as to the best method of reaching the calculus in the various positions in which it may be found.

Deaver[3] contributes an account of the subject with a report of five cases. He points out that calculus in the ureter is very much more common than was formerly supposed, indeed the Röntgen rays show it to be more common than in the kidney itself. In the descent from that organ it is prone to be arrested at three points: (1) Two inches from the pelvis of the kidney, as the ureter bends forward, over the psoas muscle; (2) at the brim of the pelvis where it dips down across the bifurcation of the common iliac artery; and (3) close to the

[1] *München. med. Wchnschr.*, 1906, liii. 1890.
[2] *Brit. M. J.*, 1905, i. 1325. [3] *Ann. Surg.*, 1906, xlii. 732.

vesical orifice of the ureter. The symptoms of ureteral calculus are those of renal calculus, except when the stone is lodged in the lower end of the duct. The difficulty is to determine at what point the stone is lodged. Tenderness at the seat of impaction and a technically-perfect skiagram are valuable aids to diagnosis, but in cases of doubt the kidney should be explored first through the loin and a sound passed down the ureter. If after an attack of renal colic symptoms of renal calculus persist we may be certain at any rate that the stone has not travelled as far as the lower ureter. Although a calculus may remain lodged in the ureter indefinitely without producing serious symptoms, yet such cases are exceptional, and it is questionable whether it would not be the surgeon's duty to remove it as a prophylactic measure. If the stone is rough and mammillated it is more apt to excite ulceration and inflammation, though less apt to absolutely occlude the ureter than a smooth stone. On the other hand, a small stone is more likely to pass, but if it does become arrested is almost certain to give rise to hydronephrosis. The operation for removal of the calculi is satisfactory. One of the five cases reported died owing to stones being impacted in both ureters. The route to be chosen for removal is of much importance. If the stone is known to be near the bladder it is usually most successfully removed intravesically. In females it has been removed by the vagina, but this is less satisfactory, and in them the urethra can be dilated, the vesical orifice of the ureter incised, and the calculus removed with a suitable forceps. In males quite large stones have been removed by incising the lower end of the ureter through a suprapubic opening in the bladder. This means, however, will not suffice unless the calculus is lodged very close to the vesical orifice of the ureter. If impacted an inch away from the bladder wall, the extra-peritoneal route is the best. In this operation the ureter is carried along with the peritoneum as the latter is stripped up from the iliac fossa, and is to be sought on the vesical side of the wound. When a stone is exposed in the ureter, it is proper to try to dislodge it and push it either upward into the pelvis of the kidney or downwards into the bladder. An incision into the ureter itself is usually to be avoided, though in Deaver's opinion the probability of a permanent urinary fistula remaining is exaggerated. If the stone cannot be dislodged, it is safer to incise the ureter than to attempt to crush the stone *in situ*. The opening should be closed by two rows of sutures, catgut for the submucous tissues, and a silk suture of the Lembert type for the muscular wall, this plan diminishing the probability of a fistula persisting. Carcinoma was found immediately above the impaction in one of the cases recorded. At the conclusion of the paper the following unsettled points are put for discussion:—(1) The value of the X-ray and cystoscope with catheterising of the ureter in diagnosis; the significance of localised tenderness; the

propriety of exploring the ureter intraperitoneally to locate the suspected stone. (2) The question of removal of quiescent or latent stones. (3) The best route for the removal of juxta-vesical stones, whether perineal, vaginal, intravesical, suprapubic or extraperitoneal. (4) The proper treatment of the stone when found, whether it should be pushed on into the bladder, should be crushed, or whether the ureter should be incised. (5) The best method of suturing the ureter. (6) Whether nephrectomy is to be countenanced except for incurable disease.

Gibbon,[1] under the title, "The transperitoneal examination of the ureter in cases of suspected ureteral calculus and the combined intra- and extra-peritoneal uretero-lithotomy," illustrates certain advantages of a thorough palpation of the ureter when the abdomen is opened for lesion of other organs and specially for the less acute varieties of appendicitis. The first case quoted is that of a man, æt. 39, admitted as a case of subsiding appendicitis. He had had repeated attacks of pain in the abdomen, accompanied by vomiting and diarrhœa. There was persistent tenderness on deep pressure in the right iliac region, but no urinary symptoms. The urine showed a number of red-blood cells. The abdomen was opened through the right rectus, and whilst searching for the appendix a hard lump was felt below the iliac vessels in the true pelvis. The appendix was removed, there being evidence of past inflammation, and the wound being enlarged downwards, it was ascertained that the lump felt was a ureteral calculus. The peritoneum was now stripped downwards from the abdominal and pelvic wall to the ureter. The latter was opened longitudinally, and a good-sized stone removed. A gauze drain was passed down to the opening in the ureter and the peritoneal cavity tightly closed. The rest of the wound was closed except at its lower part. No suture was put in the ureter, but the fistula resulting was healed in a month. The second case was that of a woman, æt. 32, also admitted for appendicitis; history of repeated attacks of pain in the right iliac region, accompanied by vomiting; no urinary symptoms; urine contained a few red-blood cells and a trace of albumen. A similar operation was performed as in the previous case. The appendix, though normal, was removed, and a calculus then found in the ureter about the same position as before. It was dealt with in exactly the same way. Although a smaller opening had to be made in the ureter, there was a greater and more prolonged leakage of urine. The author points out the importance of palpating the ureter in all interval operations for appendicitis and cases of subacute or chronic inflammation of the uterine appendages. The immediate removal of a stone detected by palpation through the abdomen is not generally advocated, and when it has been done has been carried out through the peritoneum or extraperitoneally through a separate incision, the first one being closed. The author ventures to

[1] *Ann. Surg.*, 1906, xlii. 742.

think that his method has not previously been employed; he points out the great advantages to be derived from having a finger in the peritoneal cavity and on the stone during the exposure of the ureter in the extraperitoneal portion of the wound. There was no infection of the peritoneum in either of his cases, and he thinks with care it can be avoided. Another advantage from the combined intra- and extra-peritoneal method is that the stone can more easily be forced on into the bladder or back on to the dilated portion of the ureter. This method is not advocated for all cases, but in all doubtful cases, and when the abdomen has been opened for some other condition, the stone should be immediately removed either through a separate incision or after the manner just described. To remove it through the peritoneum involves too great a risk. In neither of the above cases was the ureter sutured, but the author thinks that in future cases he will close the incision and introduce a drain down to the sutures.

Heaton[1] reports the case of a little girl who first had a stone removed from the right kidney and was readmitted three years later for hæmaturia and pain in the left lumbar region. The left kidney was explored, but only granulation tissue found. A probe was passed a considerable distance down the ureter without meeting any obstruction. The symptoms persisted, and she was again admitted. An ill-defined fulness could be felt high up in the rectum to the left of the middle line. A radiograph located a stone low down in the pelvis. Nothing being felt on sounding the bladder, the ureter was exposed by a curved incision in the left iliac region as for ligature of the common iliac vessels. The peritoneum was pushed backwards and stripped up from the iliac fossa, carrying the ureter with it. The latter was much dilated and thickened. On opening it a stone was felt with a probe close to the entrance into the bladder. It was gently forced upwards and removed, the wound in the ureter closed, and the external wound drained. The patient made a good recovery. The author remarks that the calculus was probably present in the ureter at his second operation, but that he failed to pass the probe far enough to feel it. When impacted in this position in adult women it can usually be felt *per vaginam*, and may often be removed by this route. It is often a matter of difficulty to remove it from above when impacted so low down, owing to the ureter being surrounded at the base of the broad ligament by a plexus of large vessels and to the proximity to the uterine artery.

Campbell[2] points out the difficulties in the diagnosis of calculus in the urinary tract above the bladder, and mentions gallstones, appendicitis, intestinal obstruction in the early stages, true renal colic, and the crisis in floating kidney, as some of the conditions to be differentiated. He thinks the most important aid to diagnosis in conjunction with the pain is

[1] *Birmingh. M. Rev.*, 1906, lix. 137. [2] *Montreal M. J.*, 1906, xxxv, 266.

urinary analysis, and that the value of the X-rays has been exaggerated. He narrates the case of a woman of 33 who complained of pain in the lumbar region, radiating down both legs and into the abdomen. It began suddenly on the right side about the level of the umbilicus, causing vomiting and necessitating morphia. There was no subsequent jaundice, no blood in the urine, or retention. The patient remained well for a year, and then she began to have frequent similar attacks. She lost twenty-five pounds in two years. The attacks were never followed by any change in the urine. On examination in the right nipple line and slightly above the iliac crests a small not very tender area could be distinguished. A catheterised specimen of urine showed a trace of albumen, a small quantity of pus, and numerous crystals of calcium oxalate. Two skiagrams showed a definite shadow on the right side about an inch above the iliac crest. A lumbar incision was made extending forwards, and an impacted stone removed from a spot 1½ in. below the pelvis of the kidney. The wounds in the ureter and skin were closed, and the patient made an excellent recovery.

Hubbard[1] reports an interesting case of a man, æt. 48, admitted with pain in the right side of the abdomen, extending to the back. There was tenderness down the loin to McBurney's point. Whilst under observation he had a more severe attack of pain with vomiting. The diagnosis seemed to lie between a mild retro-cæcal appendicitis and a renal calculus, so the abdomen was opened through the right rectus. The appendix, though showing no sign of disease, was removed, and a small mass felt in the ureter. The abdominal incision was closed, the patient turned over, and the right kidney exposed through the loin and the ureter traced downwards. The stone was found about 1½ in. below the lower pole of the kidney. The ureter was incised, and the stone removed with some difficulty, owing to the firmness of the impaction. The incision in the ureter was closed with fine silk, and a gauze wick passed down to suture line and the wound closed. There was a little leakage of urine from the wound, and the resulting sinus was not entirely closed for nearly two months.

Bennett,[2] in referring to the use of X-rays in the diagnosis of abdominal pain, points out their great importance in cases where the symptoms point somewhat inconclusively to appendicitis, and relates two cases. The first, a girl of 18, admitted for attacks of appendicitis and tenderness over McBurney's spot, with abdominal resistance, in which the X-ray showed a good-sized calculus in the ureter; the other, a middle-aged man, who after eight attacks of appendicitis had his appendix removed. The operation had no effect on the attacks, but subsequently one of them terminated abruptly, and within three

[1] *Boston M. & S. J.*, 1905, cliii. 584.
[2] *Practitioner*. Extra X-ray number, 1906.

days a small stone was passed by the urethra and no further attacks followed. An X-ray examination might have shown this.

As bearing to some extent on Heaton's case, the writer had a small boy about a year ago admitted with symptoms of renal calculus. A skiagram showed very clearly two or three stones, and these were removed from the kidney, but the symptoms persisted after operation, and a few days later there was abdominal pain from distended bladder and a calculus impacted in the urethra. This was removed with relief to all the symptoms. On reference to the skiagram, a distinct shadow was seen on the brim of the pelvis corresponding in size with the stone removed from the urethra. This had escaped the observation of both skiagraphist and surgeon.

From a brief review of these recently-published cases one may deduce the following points: That the diagnosis of ureteral calculus is often fraught with difficulty, the symptoms on the one hand may be indistinguishable from those of renal calculus, and on the other hand there may be no symptoms whatever pointing to an affection of the urinary tract. That these latter are usually mistaken for intra-abdominal conditions of quite another nature, and most often for appendicitis. So likely is this to be the case that in interval operations for the latter condition it is recommended that the ureter be carefully palpated, and specially when obvious signs of disease of the appendix are absent. That when a calculus is discovered in the ureter it should be removed at once: if quite close to the bladder, through that viscus, or perhaps in a few cases in women by the vaginal route; otherwise by one of the many extra-peritoneal methods; that it should not be removed through the peritoneum; and, finally, that the ureter should be sutured when possible, but if impossible, it is unlikely that a permanent fistula will remain.

HAROLD F. MOLE.

DERMATOLOGY.

Effect of Diet on the Fat-secretion of the Skin.—The investigation of the interdependence of the physiological processes of the skin and of the metabolism of the body as a whole is a subject which is receiving the attention of both dermatologists and pathological workers to a remarkable extent at the present time. A very valuable research in this province has recently been published by Rosenfeld, of Breslau,[1] which deals with the effect of diet on the fat-secretion of the skin. He starts with a résumé of the results obtained by other authorities, quoting notably those of Krukenberg and Leubuscher, who used a method which depended on the estimation of the fat excreted over a small area in a given time, from which the approximate amount could be calculated for the whole surface of the body—an estimation in which the errors became enormously magnified,

[1] Rosenfeld, *Zentralbl. f. innere Med.*, 1906, xxvii. 986

since the actual amount of fat collected was multiplied by 4,000 or 6,000 to give the total for the body. These two authorities arrived respectively at the conclusion that 40.8 gm. and 15 gm. per diem represented the whole fat-excretion of the skin. Rosenfeld, by a process that leaves little room for magnification of the experimental error, estimates the total fat at an amount varying, as will be seen, from 1 to 2.5 gm. per diem.

The subjects of his experiments (two students in his clinic) were clothed completely—body, head, hands and feet—in woollen underwear, which absorbed the whole of the sweat secreted. Upon removal the garments were soaked with and allowed to stand in chloroform for several days, then pressed in a powerful iron press, and the chloroform so extracted distilled, the residue dissolved in ether, filtered, and evaporated to dryness. The changes in the diet were as follows: During the first period Herr Reich, a spare man weighing 120 lb., height 179 cm., took per diem 250 gm. of meat, 20 gm. of cocoa, 94 gm. of egg, 70 gm. of fat (as butter), and carbohydrate 100 gm. of biscuit, and 332 gm. of sugar; during the second period 250 gm. of butter instead of 70, and 88 gm. of carbohydrate instead of 420. It was found that ordinary exercise, walking and fencing, did not affect the excretion, and that the health was equally good on either diet. With a diet rich in carbohydrates the amount of fat per diem was 2.3 gm.: on the fat diet this amount fell to 0.94 gm.

Herr Ludwig underwent the same test with similar results (*vide* table, Ludwig II.), and further, while taking the so-called carbohydrate diet, observed the effect of adding 90 gm. of absolute alcohol to his food. The amount of fat then excreted did not vary perceptibly, but the "iodine-figure" showed a notable decrease, proving a qualitative change had taken place in the fat. (*Vide* table, Ludwig I.)

For purposes of comparison two diabetic patients whose tolerance of carbohydrates was low (70 and 40 gm. of dextrose respectively) were submitted to an investigation of their ordinary fat-secretion on a diet containing these quantities of carbohydrate. Their fat-secretion was equal to that of the healthy subjects while on the "fat diet."

TABLE.

Name.	Carbohydrates.	Fat.	Fat-secretion.	Iodine-figure.
	Gm.	Gm.	Gm. per diem.	
Reich—1st period	420	100	2.3	—
,, 2nd ,, ...	88	250	0.94	—
Ludwig I.—1st period	210	150	2.4	69.23
,, 2nd ,, ...	210	150	2.3	58.32
Ludwig II.—1st period ...	390	100	2.2	70.84
,, 2nd ,, (alcohol)	80	240	1.44	62.54
V. (Diabetes)	70	—	0.95	—
H. (Diabetes)	40	—	1.1	—

In diabetes with a diet free from carbohydrates and rich in fat there is little secretion of fat by the skin; at the same time the subjects show a tendency to develop boils and carbuncles. Rosenfeld propounds the question, "Is free fat-secretion a protection against boils?"

Ludwig in his experiment found that with an ordinary diet, rich in carbohydrates, he was able to take 4 gm. (60 grains) of potassium bromide per diem without any signs of bromide-acne. His fat-secretion was 2.05 gm.

Further questions suggested, but not experimentally answered, are, "Is a skin freely covered with a layer of its own fat-secretion thereby protected from invasion by the bacteria which always haunt the mouths of the epidermal glands?" "Have the fat people who get acne on a diet rich in fat less secretion on the surface of the skin to protect them against infection of the sebaceous glands?"

Subcutaneous accumulation of fat probably means a diminished excretion. Rosenfeld has made no researches wherewith as yet to solve these problems, but he suggests some interesting points bearing upon them.

"The Greeks of old, epicures in cleanliness and experts in the toilet, had as an adjunct to their baths a special process of rubbing the whole body with oil, probably to prevent the painful cracking which results from exposure to a dry climate and excessive loss of water by sweating. The Pustan shepherd[1] anoints himself with lard and hangs his shaggy sheepskin to windward; the Bushman curls himself up for his night's rest in a shallow pit well lined with raw hides, so that next morning, besmeared with fat and dust, he can start abroad protected for his wanderings under a brazen sky." From this Rosenfeld would argue that a covering of fat checks loss of water by perspiration and plays a considerable part in "heat-regulation."

* * * *

Upon "**Heat-regulation in Universal Skin Diseases**" Linser[2] has just published some interesting observations in three cases of eczema, psoriasis, and erythrodermia exfoliativa (with pseudo-leukæmia). The difference between the surface temperature (taken by Oehler and Grünewald's method) and the rectal was found to be only about 1° C. instead of the $3°-3\frac{1}{2}°$ in normal subjects. He suggests that dilatation of the capillaries of the skin in extensive disease may account for this approach of the external to the internal temperature. In such cases there is a greater quantity of blood exposed to the cooling influence of the air, consequently an increased "heat-loss" and greater "heat-production." This can be readily proved by placing the patient in a hot bath: in a few minutes the temperature rises in cases of wide-spread erythematous skin disease, while that of the normal person remains unchanged. So, too, in

[1] Pusta: the fertile plains bordering the Danube in Hungary.

[2] Linser, *Arch. f. Derm. u. Syph.*, 1906, lxxx. 249.

Linser's case of erythrodermia, a hot summer's day had the effect of sending up the temperature.

Now this increased heat-production indirectly argues an altered rate of metabolism, a problem which Linser set himself to study. The patient with **psoriasis** was placed on a mixed diet containing nitrogen 3,100 calories, or 50 calories per kilo of body weight. He was kept in bed, with sufficient covering to keep him warm in a room whose temperature was 15°—18° C. After five days the temperature was raised to 26°—30°, and the room sufficiently ventilated. Although the patient sweated freely, he did not feel uncomfortable and his appetite was good. The nitrogenous excretion was estimated by the Kjeldahl method, and the urea-N. by Krüger-Schmidt's.

A similar experiment was made in the case of **erythrodermia**.

In each case when the temperature of the room was raised (during a period of three days) the nitrogenous exchange was remarkably diminished, showing that the increased heat-loss caused by the skin disease very largely accounted for the high rate of exchange of energy.

In tabular form the results were as follows (averages per day):—

Intake.	Output.		Temperature of Room.
Food-Nitrogen.	Total N. (Urine and Fæces.)	Urea-N.	
Psoriasis.			
Gm.			
25.3	25.7	0.75	16°—18°
25.3	23.8	0.97	26°—30°
Erythrodermia.			
27.9	27.2	1.04	16°—18°
27.9	25.9	1.28	26°—30°

The heat-production and heat-loss in these diseases is nearly double the normal. The clinical importance of this is, that such a rate of metabolism cannot be for long maintained without serious harm to the organism as a whole, and that if these extensive skin affections go uncured they will of themselves prove fatal in a year or two even apart from intercurrent disease.

The marked decrease in the rate of metabolism when the heat-loss was prevented by raising the temperature of the room to something approaching the normal body temperature is most instructive, and demonstrates that external warmth is a vital necessity in the treatment of these wide-spread skin affections that are accompanied by cutaneous hyperæmia.

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Radaeli,[1] of Florence, has contributed a very important study

[1] Radaeli, *Arch. f. Dermat. u. Syph.*, 1906, lxxx. 323.

upon **the pathology of mycosis fungoides**, which adds not only to our knowledge of this disease in particular, but has a far wider application to disease in general. His paper, although by no means a dogmatic or final statement, is calculated to throw considerable light on a most debatable skin affection, and contains facts which, broadly interpreted, form a notable addition to pathology in its widest sense.

The condition Radaeli describes is one which Kaposi termed lymphodermia perniciosa, and is allied with pseudo-leukæmia cutanea on the one hand, sarcomatosis cutis on the other. His case was that of a man, aged 64, who eighteen months before death developed somewhat rapidly successive enlargement of all the lymphatic glands. A month or two after the first glands began to swell a skin eruption was observed—at first erythematous spots, which gradually developed into actual tumours. In spite of arsenic and anti-syphilitic treatment (the history of syphilis was almost certainly absent) the condition in no way improved, but progressed: the tumours in the skin increased and the glands enlarged everywhere, tonsils included; the liver and spleen grew to a size until the case presented the appearance of advanced lymphadenoma. The whole skin was a pale yellow, almost straw-colour, and œdematous except on the arms.

The eruption consisted of—(1) Pale, yellowish, erythematous spots, varying in size from a lentil to a halfpenny, in some cases covered with a fine branny scale; (2) Several round or oval papules, of a yellowish rosy-red colour, as large as a halfpenny or a penny; (3) Round nodules, from the size of a hazel-nut to an egg, rose-red, feeling fibrous or fleshy, situated subcataneously, with a smooth surface—in some places adherent to the skin and even ulcerated, and quite painless. At a late stage one set of glands in the left groin suppurated, and the abscess was opened, but neither in the pus nor in excised portions of skin, nor in the blood either during life or at the autopsy, could any micro-organisms be demonstrated.

There was at no time leucocytosis or abnormal differential count. The conditions found *post-mortem* briefly resolved themselves into a general infiltration of the skin with mononuclear lymphocytes, which by local aggregations gave rise to the tumours. These consisted almost entirely of lymphocytes with but scanty supporting stroma and blood-spaces lined by a single layer of endothelium. Here and there the lymphocytes were larger than usual, and contained several nuclei arranged peripherally (giant cells); the epidermis was thinned, the intercellular spaces widened, the cells of the rete malpighii cystic in places. Between the epidermis and the new infiltration tissue was a layer of œdematous corium and a few groups of tumour cells resembling in appearance and staining reactions mononuclear lymphocytes. There were some plasma cells and a few mast cells, but a complete absence of polynuclear cells

betokening inflammation, no atypical cells associated with malignant growths and no hyperplasia of tissue.

On examining the glands, marrow, liver, spleen, and even kidneys (which were apparently in a state of acute parenchymatous nephritis), the same remarkable feature stood out saliently, that the enlargement of the organs depended, not upon the presence of any recognised inflammatory or neoplastic tissue, but upon a general invasion by these lymphocytes, slightly larger than normal and in great profusion.

Radaeli sums up excellently the observations of himself and other workers in this field. In this case the complete absence of any signs of an infective origin, of any "granulomatous" tissue, and of cells usually associated with lympho-sarcoma mark it as something apart. Plasma cells, mast cells, and giant cells are not commonly met with in sarcoma, nor mitotic figures in lymphocytes such as were found here. Moreover, the disease in the glands was the first change observed.

Unna had noticed in mycosis fungoides the polymorphism of the cells, the presence of a few plasma cells, abundant mast cells with frequent mitoses, and two forms of polynuclear cells—the one with irregularly-divided nuclei like myeloplaques; the other larger cells, the shape of whose nuclei and character of protoplasm was identical with the giant cells of tubercle or syphilis. Moreover, there were signs of protoplasmic disintegration in the presence of free albumin granules which in Radaeli's case were absent. He suggests that Unna's description relates to tumours undergoing spontaneous involution, while his own deals with the stage of active development. Philippson's description agrees in some details with each of the foregoing. He found, like Unna, polymorphism of cells, a few giant cells (in the early stage of the disease), and mitosis.

Most authorities agree that the primary focus of the neoplasm is in the blood. They are also agreed upon the occurrence of numerous small foci in the apparently sound skin.

Radaeli describes three stages in leukæmia and pseudo-leukæmia:—

1. Enlargement of lymphatic organs without lymphocythæmia. (A-lymphomatous pseudo-leukæmia of Turk.)
2. Relative increase of lymphocytes without absolute leucocytosis. (Sub-lymphæmic lymphomatosis of Turk or lymphatic pseudo-leukæmia of Pinkus.)
3. Leukæmic stage, with enormous lymphocytosis. (Lymphatic leukæmia.)

The skin changes found in association with leukæmia and lymphadenoma are many and varied, while as to the exact diagnosis of mycosis fungoides there is the widest diversity of opinion. Radaeli ventures upon the suggestion that at least two groups of mycosis fungoides exist—cases associated with

leukæmia or pseudo-leukæmia, and those other cases where the existence of leukæmia is not suggested. In the former class further variations may have to be recognised corresponding, perhaps, to the stages of leukæmia mentioned. For instance, Pelagatti reported in myelogenous leukæmia quite a different series of skin changes from those found by Radaeli in his case.

The conclusion finally propounded is that, whatever else the pathogeny may include, the disease arises in the blood, and depends in some way upon the vascular system for its dissemination. In fact, Radaeli inclines to the view that the truth lies somewhere between Ranvier and Gillot's old theory of "lymphadenie" of the skin and Kaposi's "lymphodermia perniciosa."

J. A. NIXON.

Reviews of Books.

Carbohydrate Metabolism and Diabetes. By F. W. PAVY, M.D. Pp. xi., 138. London: J. and A. Churchill. 1906.

In this interesting book Dr. Pavy views carbohydrate metabolism from the physiological and pathological aspects. One of the main "arguments" in the book is that the glycogenic doctrine having been founded on erroneous data should be abandoned, particularly as this doctrine leads to serious error in practice. Dr. Pavy advances his own views, which are based on a very considerable amount of experimental observation and clinical experience, with much force and lucidity. If sugar circulates as such in the blood it is excreted by the kidneys, for sugar cannot exist in simple solution in the blood without the appearance of glycosuria. He has shown that sugar contained in the blood is not only present in the form of glucose, but that after hydrolysis an additional quantity makes its appearance. He maintains that this phenomena is explained either by the presence of carbohydrate matter of lower cupric oxide power than glucose, or by the liberation of sugar from a glucoside. Proteid matter has recently been shown to be of a glucoside character, and to be able to yield cleavage carbohydrate. Forming a constituent part of a large proteid molecule, the carbohydrate element is not discharged by the kidneys. Microscopical examination of the villi of the small intestine during digestion reveals a very largely increased number of lymphocytes within the villi, and it is known that a well-marked lymphocytosis occurs in the blood after a meal. This implies an increase of proteid carried to the blood. Pavy regards these lymphocytes as carriers of food from the intestine, and suggests that the sugar is carried as a side chain in the proteid molecule,

from which it can be removed when required by the tissues. In the simplest form of diabetes, which he calls "alimentary," some of the sugar fails to be properly assimilated by the proteid element in the lymphocytes, and then entering the blood in the free state is filtered off by the kidneys. In the more serious variety, which he terms "composite," to the faulty anabolism is added a faulty katabolism attended with the liberation of sugar. In this latter variety the acetone series of products are also formed. He considers as a point of great importance the fact that sugar circulating in the blood acts as an extremely toxic substance to the bodily tissues, and compares its action with alcohol and other well-known toxins. Moreover, by its powerful diuretic action it leaves the body defective in fluid. The rational treatment of the disease, which contains many points of interest, and which is based on the principles enunciated in the work, forms the latter part of the bock.

Sex and Character. By OTTO WEININGER. Authorised translation from the Sixth German Edition. Pp. xxii., 356. London: Wm. Heinemann. 1906.

The study of the author and of his work gives results of equal interest. Weininger appears to have suffered from one of the various forms of *dégénéré supérieur*, first fully described by French alienists. Here was a youth brilliant in parts, certainly without recognisable insanity, but with irregular limitations of mental horizon, who was possessed by overmastering convictions on certain subjects, which he allowed to pervert his premises and coerce his logical processes. He has taken heavy toll from many writers where their theories have accorded with his own, and has perhaps not invariably acknowledged them sufficiently, but he has so thoroughly assimilated their work and woven it so deftly into the texture of his own that his book shows in no place the evidence of a compilation. Although the work is for the most part deficient in physical basis, and many of his theories are crude and lacking sufficient support, although the whole credence he gives to many of his quoted authorities is doubtfully justifiable, and hysterical the insistence on many of the inferences he draws, yet there is nevertheless an abundance of shrewd, even brilliant observation, which often convinces in spite of the unpalatable truths it discloses. The author's untimely end by suicide, the evidence of an enormous digestion of general and special psychological literature in proportion to his youthful age, the keen and unremitting virulence of his attack on woman, the obvious avowal of a defensive attitude, if not a partisanship, with regard to certain forms of sexual perversion, have secured for this book an amount of attention which we think may have been to some extent too generously given.

Apart, however, from the pursuance of his main theory, there are sections of more general interest on which eulogy has been well bestowed. Such are the chapters on Logic and Ethics, Memory, Talent, and Genius, the "Ego" problem, which are at least worthy the most careful study. These reveal an occasional transcendental penetration and lucidity of expression quite remarkable. It appears to us that there has been at work in the author's mind a latent hostility to womankind, so unsleeping, so unsparing, that it needs must have proceeded from an unavowable, if recognised, sense of injury suffered in relationship to this sex. Weininger's bitterness is that of the renegade or of one who stigmatises in others the hidden and deplorable vices or defects of his own nature. In the author's own words there is some suggestion of this attitude. Thus he writes: "We hate only qualities to which we approximate, but which we realise first in other persons." Again: "Those men who claim to understand women are themselves very nearly women. . . . We have to rely upon the female element in man; the principle of sexually intermediate forms is the authority for what we know about woman through man." There are several passages in the book from which inference may be drawn that one of the curious anomalies of sex, mental, physical, or both, of which the author treats, may have been his unfortunate and embittering lot. We can here only give the briefest mention of his theories. Weininger assumes that perfect male and perfect female are ideal conceptions; each sex has a varying proportion of its opposite merged with it. That is, all actual organisms are both homo and hetero-sexual, and homo-sexuality is merely the sexual condition of those intermediate forms that stretch from one ideally sexual condition to the other. Not only coarse anatomical signs may reveal these intermediary states, but it is asserted that every cell in the body is sexually characteristic and may exist in all conditions from complete masculinity to complete femininity. Thus Weininger assumes that the (practically) complete male will have some female elements, but the larger proportion of masculine; the woman the reverse. True sexual union must imply that male and female elements must be in complementary proportion to each other; the larger the proportion of maleness in a man, the larger should be that of femininity in the female. Varying in relation as these complementary parts may be, the author insists that man may be almost completely psychically female, but woman remains fundamentally feminine, and her masculinity can never attain to a corresponding extent; she has masculine traits, that is all.

But it is to this relative maleness in women that Weininger refers any intellectual qualities they may possess. All women, he writes, who are truly famous and of conspicuous mental ability at the first glance reveal some of the anatomical characters of the male, have almost invariably been what he describes as sexually intermediate forms. This doctrine is the basis of most

of his arguments throughout the book. Having established man, though admittedly not perfect, as the moral and intellectual being, Weininger proceeds by every legitimate and illegitimate use of logic to descry woman as a non-moral, non-intellectual being, having no meaning apart from the sexuality of man. "Her existence is bound up with the Phallus, her welcome master and supreme lord," he boldly says. So, according to him, woman is shameless, organically untruthful ("it is quite wrong to say that women lie, that would imply that they sometimes speak the truth"), without sympathy, without soul, without continuity in memory, unable to think but in unclarified ideas ("henids"), without principles, logic, or judgment. She is devoid of personality, freedom, character, or will; is too low in the moral scale to be designated criminal, and has only one positive general characteristic, that of matchmaking, or the furthering of sexual union. Above all, woman is sexual, and nothing but sexual throughout. Being such, she cannot recognise her sexuality, and attempts to deny it. From these assumptions the author derives his theory of hysteria. The basis of this is the passive and entire acquiescence of woman in the masculine and wholly conventional estimate of herself, instead of allowing her own proper character free play. Hysteria is the bankruptcy of this superficial sham self, which has been only assumed; it is the organic crisis of the organic untruthfulness of woman. It is psychological sexual traumatism. Weininger makes very plain his views on sexual abstinence; that the world's human population should come to a close is preferable to the moral murder of man and woman by sexual congress. Marriage to him, in its existing form, is as incompatible as free love with the highest interpretation of the moral law. Motherhood is no sacred ideal for him; the prostitute as a phenomenon, not as a person, is much more estimable. To him every form of fecundity appears offensive, and he denies that any person can honestly convince himself that there is any need to provide for the continuity of the race. Women too must spontaneously relinquish sexual relationships with men; thus woman as woman must disappear, "and until that has come to pass there is no possibility of establishing the Kingdom of God upon earth." After having ruthlessly stripped woman of every vestige of valuable or estimable characteristics, the author absolves her from the opprobrium of any active scelerity by recognising that her guilt has been made by man, and to him is the blame. Weininger considers his aim in writing this book to be the emancipation of woman from her vile and voluntary serfdom, and thus to constitute the highest honour paid to the sex. Women, considering his views as to their sexual abstinence, may perhaps regard his tribute in the melancholy light of an obituary monument to their sex.

We must, however, give warning that the extreme views crudely presented in this place must not be allowed to stigma-

tise the work as a whole. Impetuous, biased, even dominated by some conviction to which we have no certain clue as is Weininger's book, yet there is a fitful gleam of genius illuminating its pages here and there, an unsparing effort to attain full consciousness and comprehension of his subject, and an unshrinking responsibility for his terrible indictments. The evidence of his highest thought is contained in the chapters before specially mentioned; his faults are those of a morbid egoism and a jaundiced attitude of mind, perhaps the result of a baffled eroticism, which has led him to the pursuance of a theory with fanatical extravagance.

In conclusion, we must repeat the caution given by the author in his preface, that the book is of a quality not to be understood at the first glance. The production of the book is all that could be desired, and the translator's work performed with masterly skill.

Green's Encyclopedia and Dictionary of Medicine and Surgery Vol. I. AAC—BRA—Aachen to Brain. Pp. xii., 538. Edinburgh and London: Wm. Green and Sons.—In this work the attempt is made by the editor to combine the advantages of the *Encyclopedia of Medicine* with those of the *Medical Dictionary*. On the one hand, the reader will find the elaborate articles of the *Encyclopædia Medica* (1899–1904); on the other hand, he will discover a large number of new paragraphs, varying from a few words up to thirty lines, representing the lexicographic portion. The editor (Dr. J. W. Ballantyne) has made himself responsible for the whole of the dictionarial part of the work: the longer articles are written by the most eminent specialists and authorities to be found in the British Islands. The printing of this volume is exceedingly well done, and its value is so obvious that it needs no comment. We trust that the publishers will be rewarded for their enterprise, and that *Green's Dictionary* will be looked upon as a necessary part of the furniture of the consulting-room.

System of Medicine. By Many Writers. Edited by THOMAS CLIFFORD ALLBUTT, M.A., M.D., LL.D., and HUMPHRY DAVY ROLLESTON, M.A., M.D. Second Edition. Vol. I. Pp. xvi., 1209. London: Macmillan and Co. Limited. 1905.—We heartily welcome a second edition of this well-known work. One new volume is to appear each year, so that the old edition will be gradually superseded. There are many alterations and additions in the first volume. Among the additions we may mention articles on the "History of Medicine," by Professor Allbutt and Dr. Payne, "Old Age," "Physical Exercises," and "X-Rays in Medicine." The article on the "Clinical Examination of the Blood" has been transferred to this volume from Volume V. Many of the articles have been entirely re-written, including those on the "General Pathology of New Growths," "Medical Statistics," and

"Medical Geography"; while the article on the "General Pathology of Nutrition" has been much enlarged. It is quite unnecessary to insist on the great value and excellence of the articles.

Heart Disease and Aneurism of the Aorta, with special reference to Prognosis and Treatment. By Sir WILLIAM H. BROADBENT, Bart., K.C.V.O., F.R.S., and JOHN F. H. BROADBENT, M.A., M.D. Fourth Edition. Pp. xvi., 479. London: Baillière, Tindall and Cox. 1906.—A fourth edition of this book requires little comment or commendation. Its preparation has been entrusted to Dr. John F. Broadbent, who has re-arranged the subject-matter and added chapters on the pulse, diseases of the coronary arteries, bradycardia, and atheroma of the aorta. The third edition was reviewed by us in 1900 (vol. xviii., p. 159). It was there mentioned that few physicians have had the opportunities of Sir William Broadbent for forming opinions on the prognosis of various forms of heart disease, and hence this book may be expected to contain the condensed views of a clinical physician of vast experience and of matured judgment. The various chapters on prognosis are well worthy of careful study, and cannot fail to be instructive to those of considerable experience who can best appreciate the views of the writer. The chapter on affections of the myocardium introduces points which are easily overlooked and forgotten except by the specialist. It is there stated that "syphilitic affections of the heart wall are not very common, but are doubtless frequently overlooked." The chapters on fatty degeneration, on angina, on tachycardia, and on bradycardia, are all most instructive. The subjects of acute and chronic degenerative lesions of the aorta lead up to the final chapter on aneurysm of the arch of the aorta. Here the author does not encourage the various modern methods of treatment by injection of gelatine and by electricity; he mentions with favour the administration of chloride or lactate of calcium in doses of 10 to 15 grains two or three times a day, but he clearly trusts far more to the older practice of limiting the food and fluids with the administration of full doses of iodide of potassium.

Consumption: Treatment at Home and Rules for Living. By H. WARREN CROWE, M.D. Pp. 32. Bristol: John Wright and Co. 1906.—This little book can hardly fail to be of value, not only to the general practitioner, but to all who are interested in the nursing of consumptives in their own homes. Its chief value lies in the fact that it is obviously written by one who has encountered the difficulties attendant on the general practitioner who attempts to enforce the necessary discipline and régime which are of such importance in the life of a consumptive. It is clear that Dr. Warren Crowe has experienced the difficulty of getting consumptives to go to

sanatoria, where this régime can best be taught; and since this difficulty so often arises, we can think of no better *vade mecum* for this class of patient.

The "Nauheim" Treatment of Chronic Diseases of the Heart. By LESLIE THORNE-THORNE, M.D. Second Edition. Pp. x., 75. London: Baillière, Tindall & Cox. 1906.—This book gives a good practical description of the methods of administration of Nauheim baths, and also of the Schott exercises. The movements of the latter are well illustrated by twenty-eight photographs, while a chapter is devoted to the selection of cases suitable for the treatment. The book forms a useful guide to all the details necessary for the carrying out of the treatment.

The Consumptive Working Man: What can Sanatoria do for him? By NOEL DEAN BARDSWELL, M.D. Pp. vii., 202. London: The Scientific Press Limited. 1906.—So much literature has appeared on the subject of tuberculosis during the last few years, that it is with pleasure we record the publication of a practical little volume dealing with a portion of the subject which is receiving much attention abroad at present, and which has been subject to so much controversy in this country. Written as it is by one who has had actual experience in treating the consumptive working class under various conditions, the subject is dealt with both practically and sympathetically, and much valuable information is imparted as to that most important aspect of the question, the after-care of patients. It is clear that unless employers are approached with a view to improved conditions of work after discharge, patients must return to surroundings which are at least in most cases the pre-disposing factor in the acquirement of the disease. But the question bristles with difficulties, and members of health committees, besides the medical profession, will find useful suggestions on this matter. Dr. Bardswell says, "Fortunately for consumptives, ideal climatic conditions are not essential to their treatment," with which we thoroughly concur. Treatment is of primary importance. Life histories occupy much space, and might have been curtailed to advantage. The value of the book is enhanced by an introductory chapter by Sir William Broadbent; whilst the three appendices, especially that dealing with the statistics of German sanatoria for the working classes, will well repay perusal. We regret that nothing is said with regard to the employment of consumptives whilst undergoing treatment, for to our mind this is a valuable means of arriving at some estimate of capability for work on their discharge from sanatoria. We can thoroughly recommend this little volume to all those interested in the subject as an earnest and careful contribution to the literature on the subject.

The Medical Annual for 1906. Bristol: John Wright and Co.—The total destruction by fire of the large portion of this

24th issue gave the publishers exceptional difficulties, which have been surmounted nobly, and the volume appears to have lost nothing by the great difficulties of its early life. No previous issue has contained more valuable matter both as regards text and illustrations. We notice that the names of Dr. Watson Williams and Mr. Harold Mole are included in the list of contributors. The volume contains, as usual, much valuable information on every conceivable variety of topic, and should be at hand on the table of the busy practitioner for constant perusal and consultation when in any difficulty.

Hints on the Management of the Commoner Infections. By R. W. MARSDEN. M.D. Pp. viii., 128. London: William Heinemann. 1906.—This book endeavours to present a *résumé* of the principles of treatment to be observed in the management of those commonly occurring infections or intoxications which are due to the direct or indirect action of micro-organisms. The subject is, however, limited by the exclusion of those diseases which are not endemic in this country. The busy practitioner will here find an outline of the practical details of the individual treatment of patients which are of the greatest importance, but which are in the text-books commonly compressed into only a few sentences. From the late medical superintendent of the Monsall Fever Hospital and clinical lecturer in infectious diseases at the Owens College, Manchester, may be expected most authoritative views on all doubtful points in the subjects relating to the invasion of the body by septic micro-organisms.

Transactions of the College of Physicians of Philadelphia. Vol. XXVII. Philadelphia: Printed for the College. 1905.—A series of papers forming what is called an X-ray Symposium are an important part of this volume. Dr. Ennion G. Williams concludes "that we have in the X-ray an agent that has a specific and destructive effect upon malignant tumours by taking away the life of their cells, and that its application in treatment is limited only by the ability to reach the growths with the proper amount of energy and safety to the surrounding parts." In the discussion which followed these papers Dr. Johnston (Pittsburg) said that he had demonstrated to his own satisfaction that the X-ray has the power of inhibiting the growth of malignant tissue. "If it has that power, and if the inhibition be continued long enough, we may hope that the malignant tissue may settle down and forget to be an anarchist." Dr. Leonard closed his remarks by saying that "if there is any agent capable of inhibiting the primary growth as well as the metastasis that agent needs to be studied carefully, not only by X-ray men but by pathologists and general practitioners." This is precisely what our X-ray societies are endeavouring to do. The subject of X-ray diagnosis of gastroptosis by the assistance of large doses of bismuth subnitrate is dealt with by Dr. Pfahler.

Appendicitis: its Pathology and Surgery. By C. B. Lockwood, F.R.C.S. Second Edition. Pp. xiv., 342. London: Macmillan and Co. Limited. 1906.—The first edition of this work was reviewed in this *Journal* some years ago, and the general plan and arrangement of the first edition has been retained, but new observations have been added and many facts from recent contributions on appendicitis have been incorporated in the new edition. The author says: "The subject is not yet ripe for more general treatment." It is not quite easy to understand this. A very large amount of experience has now been gained, and a vast amount of literature on the subject has accumulated. No doubt the fact that the book is nearly altogether a record of the author's own observation and experience gives it a special value. Many will be curious to know what is the author's present view as to the indications for operation in appendicitis, for many surgeons have considerably altered their practice since the first edition of the book six years ago. Mr. Lockwood does not go so far as to say that it is advisable to operate on all cases. He strongly objects to Sir Frederick Treves's statement that operation is seldom required before the fifth day, for, as he says, some cases of gangrene and of perforation run their course with frightful rapidity, and are soon beyond the reach of surgery. As he says: "The question of operation would cease to be difficult if we could infer the pathological condition of the appendix and of the structures in its vicinity. . . . At the present time our diagnosis does not justify a precise diagnosis in every case." This is just why some of us think it is safer to remove the appendix in all cases. Mr. Lockwood says he has never regretted operating in appendicitis under acute symptoms, and we would suggest that it would be much safer to operate than to watch an acute case "hour by hour" for indications for operation, and then very likely regret when we do operate that those hours have been lost. The chapter on "difficulties and errors" in diagnosis is one of particular value, for we learn much by the mistakes of others—almost as much as by our own. Altogether we can as strongly recommend the careful study of Mr. Lockwood's valuable work as we did in the original review.

The Urethrotomies and Kidney Capsulotomy. By Reginald Harrison, F.R.C.S. Pp. 96. London: John Bale, Sons, and Danielsson, Ltd. 1906.—The greater part of this volume contains the substance of the author's recent clinics at the London Medical Graduates' College and Polyclinic. Kidney capsulotomy is dealt with in the last eighteen pages, and there the author reiterates his well-known views on the application of this procedure for the relief of renal tension. He quotes the records of four cases in which the operation was performed. Three of these records are taken from the writer's first paper on the subject, and have been before the profession for years.

We wish he could have given us a much larger list of cases, derived from his own experience, to show the constancy with which strikingly beneficial results or the absence of such might be expected from capsulotomy. The fourth case, the one now newly recorded, is interesting from the fact that suppression of urine following internal urethrotomy appeared to be relieved by the operation. The sections devoted to the consideration of the urethrotomies—internal, external, and combined internal and external—and the application of these procedures in the treatment of stricture, urinary fistulæ, false passages, ruptured urethra, and calculus in the bladder and in the prostate gland, are well worth reading. In them the author's matured opinions are given and the perfected technique he now adopts is described.

Aids to Surgical Diagnosis. By H. W. CARSON. Pp. vii., 140. London: Baillière, Tindall and Cox. 1906.—This little book is essentially an elaborated tabular statement of surgical and differential diagnosis, and would appear to be of service to the senior student for revising his information just before an examination. The contents are in general up to date and accurate, and there is evidence of acquaintance with the latest literature of the subject. The manual may be recommended for purposes of reference or revision, and has a satisfactory index.

Studies from the Department of Pathology of the College of the Physicians and Surgeons of Columbia University, New York. Vol. x.—This volume consists of the reprints of works which were issued from the laboratory of the pathological department of Columbia University in 1904-5. For purposes of reference, it may be stated that the contents consist of papers on the pneumococcus and streptococcus, the dysentery bacillus, the diphtheria group of bacilli, a case of pernicious anæmia, showing a megaloblastic crisis followed by marked improvement, the electric conductivity of the blood during coagulation, chorion-epithelioma, and dry iodine catgut.

On Professional Education, with Special Reference to Medicine. By T. CLIFFORD ALLBUTT, M.A., M.D., F.R.S. Pp. vi., 80. London: Macmillan and Co., Limited. 1906.—This report contains an address delivered to the students of King's College, London, and we can only congratulate them on having been privileged to hear it. The medical profession may also be grateful for the occasion which was the cause of its production, and we are not surprised that Professor Allbutt received a general request for its publication. Professor Allbutt is an acknowledged authority on medical education, and in his capacity as Regius Professor at Cambridge has had ample opportunity of judging the finished results of our present system of medical training. What he has to say therefore as to its merits and defects would in any case deserve respectful

attention, and in the present instance his views gain all the additional force derived from wisdom, long experience, and mature reflection. Moreover, they are further commended to us by the eloquence with which they are urged. It is impossible here to discuss the numerous questions raised in the course of this address, questions of very real interest and importance to us. Perhaps the two main points for us at present are, first, in how far does our school training succeed in giving a sound, general education, and in what ways can its admitted defects in this respect be remedied; and secondly, how can we best occupy the years strictly devoted to learning our profession? Professor Allbutt has much to say that is of great value on these and similar subjects, and that is deserving of careful consideration by all who are interested in securing for the medical profession an efficient scientific training. We cordially recommend the book to our readers, and we are sure that they will find it most interesting reading.

Simple Introductory Lessons in Midwifery. By M. Loane. Pp. viii., 60. London: The Scientific Press, Ltd.—The aim of this little book is good, namely to try and teach the rather uneducated person the meaning of terms used in midwifery. It is little more than a glossary, and as such it is fairly complete. We rather fail to see the use of the introduction of Latin and Greek derivations to a person who has probably not the slightest idea of either language. A great many of the words used are quite unnecessary for such an examination as that of the Midwives' Board. For instance, eutochia, heterogeneous, hydræmia, &c. A chapter of scarcely two small pages on mechanisms is not enough to be of much use even to a beginner.

Annual Report of the Smithsonian Institution for the Year ending June 30th, 1904. Washington: Government Printing Office. 1905.—We always look forward with pleasure to the reading of the papers that form the appendix to the Smithsonian Annual Report, and this volume before us contains as usual a series of papers of the greatest interest. The papers cover a large range of subjects, varying from papers on more abstract science, such as the one on "Variations of Specific Gravity," down to popular subjects such as "Pewter and the Revival of its Use," and "Some New Methods of Lighting." Papers on "Morocco" and the "Present Aspects of the Panama Canal" give useful information on subjects which are at present much before the public, and there are a large number of papers on popular scientific subjects, *e.g.* "The House Sparrow," "Bees and Flowers," &c. There are no papers of strictly medical interest in this volume, the nearest approach being one on "Old Age" by Metchnikoff, in which he expounds his theory of the intestinal microbic cause of old-age degeneration.

Editorial Notes.

University College, Bristol. Faculty of Medicine.

The annual distribution of prizes to the students took place on October 2nd, 1906, under the chairmanship of the Right Hon. Lewis Fry, who congratulated the Dean of the Medical Faculty on his having obtained for the occasion the services of so distinguished a person as Professor Alexander MacAlister, of the Cambridge University, whose services in many departments of science were so universally recognised. Professor MacAlister's address is of especial interest in connection with the proposal to establish a new University of Bristol, and it commenced with the following remarks:—

"I may lay claim to have a certain shadowy connection with Bristol, as by accident I was born in the city of Dublin, a city which in 1172 King Henry II. presented to Bristol *ad inhabitandum*. I cannot, however, claim kindred either with the first set of Bristolian colonists, who were unfortunately wiped out by their truculent aboriginal neighbours on Easter Monday, 1209, or with their successors, who in the reign of King John repeopled the city on the banks of the Liffey.

"In one respect the daughter city, after the manner of daughters, has progressed faster than her mother. In 1892 she celebrated the tercentenary of the foundation of her University, whereas in this city I understand that your University is now in the throes of birth. Not that you have been without a centre of education all this time, for I believe that your Medical School has had a somewhat discontinuous existence since Mr. Page began his public lectures on Anatomy in 1746. It is encouraging to hear that at present the movement which is leading to the development of local Universities has reached this western city, and is likely to bear fruit. You have here all the conditions which fit your city to be the seat of a successful and active University—a sufficient population to draw upon, a large commercial and manufacturing centre, an ancient and famous

seaport, and an abundance of public spirit among your leading citizens.

"As long ago as 1830 your townsman, Mr. Prichard, in a letter published in *Felix Farley's Journal*, advocated the foundation of a University here, and pointed out how much England was behind Scotland in the matter of local Universities, expressing his belief that the prosperity of the latter country and the success of her sons in all lands were for the most part due to its proportionally numerous and accessible educational institutions. The five western counties and shires from which you may expect to draw your students include nearly two millions and a half of people, while the nine northern counties which constitute the basin of drainage for Aberdeen have a population somewhat under one million; and yet the northern city of Aberdeen has been during the last week celebrating the four hundredth birthday of its flourishing University, whilst St. Andrews, the centre of a much smaller district, has also a University which in five years will be half a millenium in age.

"Bristol University will doubtless be in some respects more happily situated than the University in your daughter city, which has been continually harassed through its three hundred years of turbulent history with contentions due to race prejudices and religious animosities — troubles which, instead of abating, have in late years gathered so ominously that they are at present about to be treated by that sovereign constitutional panacea, a Royal Commission.

"The birth of so many new Universities may be one of the most hopeful signs of national vitality and intellectual progress if—and it is a large 'if'—they are to be centres of research as well as centres of instruction. There is in some quarters at present a spirit of cheap and purblind utilitarianism, owing to which there is some danger that some at least of the new Universities may have ideals which make them become little better than technical schools, and whose energies are wholly occupied with the mechanical task of turning out a certain number of graduates more or less equipped for the routine of professional, commercial, or industrial life, and, as in some places, the maintenance of practical departments depends

chiefly on fees, there is a temptation towards a competition downwards in order that larger classes may be secured, success being reckoned by the counting of heads. If it is to fulfil the function for which it should exist, the University should be much more than a mere technical and professional school. The technical school is an important place of education—would we had more of them!—but the University training should be broader and of a different grade, and the institution should be equipped and maintained so that its resources shall be employed not only in the teaching of old truth, but in the discovery of new.

"This is not merely the doctrinaire view of an amateur educationalist. It is of enormous practical, national importance that provision should be made for the furtherance and encouragement of scientific research. The discovery which is only a curiosity to-day may be the groundwork of an important industry and a source of national wealth next year."

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Proposed University for Bristol.

It is impossible to avoid drawing a contrast between Aberdeen and our own city in University matters. The northern city, with a population at that time of about 4,000, received in 1494 its first charter for University teaching by the foundation of King's College, whose quater-centenary has just been celebrated. A second University was established in 1593 for about 7,300 inhabitants, and for two centuries these two University Colleges with full University powers continued to maintain a more or less independent existence. Of late years they have worked together as one combined University, supplying the highest University advantages to a city whose present population amounts to about 160,000, whereas we in Bristol, with a population of more than twice that number, have as yet no University at all.

The proposed scheme was much discussed at a farewell dinner given on October 12th to Professor Morris W. Travers, F.R.S., shortly before his departure to India.

Dr. Michell Clarke remarked that towards the end of the nineteenth century the numerous public buildings devoted to

educational purposes was very striking, and he hoped that the beginning of the twentieth century would be characterised by a still further development of this activity, and that they would crown their primary and secondary school system by a University. He trusted that future years would find a permanent memorial in a fine building emblematic of the work which their age and generation did at the time for the city. He wondered why so old a city as Bristol had not had a University before; it was not a wonder they were seeking one now.

Professor Travers pointed out that a University should have as its aim the highest advancement of learning. There was every need to form definite views on this question, and Bristol differs from many other large centres in which Universities had been recently founded. The question might well be asked, "In what should Bristol specialise?" Could they not have a great faculty of medicine? For that they seemed well fitted; and if they increased their students sevenfold, their medical charities would, he thought, provide sufficient facilities for that part of their training. The medical department was one of the most striking features of the University College. Then Bristol had industries wanting engineering, chemistry, applied sciences, electricity, technics, and he might ask about their commerce. They had the world's commerce. Could they not cater for that and supply something—which would be defined after experiment and inquiry—which would interest the greatest part of Bristol's commerce? They had great merits; they had Cabot and Colston. Chairs of economic geography were rare; there was a subject for Bristol to take up. Chairs for commercial economics were not common. What two names could be better attached to these chairs than Cabot and Colston? They must find out what they wanted and put it before the public before the public would help in the movement. Those connected with the college in the past had tried to carry out the ideal he had named—to carry learning to its highest limits. What they wanted was not only to have, but to keep men, for without them they could not make a University. When their scheme assumed more definite shape he had little doubt the City

Council would aid them, and he hoped too that the Merchant Venturers would take in it the leading part they always had in Bristol affairs.

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Aberdeen University Quater-Centenary.

An old graduate of the grey city of the North, Dr. Rattray of Frome, sends us the following account of the celebrations connected with its quater-centenary, "which are not likely to be easily forgotton by the vast assemblage of delegates, graduates and guests at the granite city during the third week of last September. Such a concourse of the *élite* of Science and Art of the whole world is not often to be witnessed. All the Universities and educational centres of importance in the kingdom sent representatives, also the Colonies, America, Japan, and nearly every European State. Bristol was well represented by Sir Edward Fry, Professor Lloyd Morgan, Dr. Shingleton Smith, Dr. Fletcher, and others.

"The crowning function of the week's entertainment was the opening of the new buildings, constituting the front of Marischal College. This is the section of Aberdeen University devoted to the Faculties of Science and Medicine. The increase of class-rooms and laboratories, the completion of the Mitchell Hall and the great Mitchell Tower, have in later years rendered the college a most imposing building, but it had long been felt how unworthy was the approach—merely a low archway in a line of old shops and houses and slumlike passages. Now these buildings are all cleared away, and Marischal College can boast of a magnificent façade somewhat resembling in structure the front of the Houses of Parliament in Westminster Palace Yard.

"Thursday in the quater-centenary week was the great day, when Their Majesties the King and Queen honoured the city of Aberdeen with their presence, and graciously performed the opening ceremony. Who will ever forget that brilliant scene, when some five thousand individuals, most of them displaying brightly-coloured academic robes, sat patiently awaiting the advent of their gracious Sovereign and his Royal Consort? The hour timed for the arrival of royalty was one o'clock, and

as the possessors of tickets had to be in their appropriated places not later than ten o'clock, there were three hours of expectancy to be endured. How short that brief period of three hours! Long ago within the building three hours was the time allotted to a professional examination, the paper on Advanced Anatomy, or on Practice of Medicine. What a contrast, those happy hours gaily passing with jokes and stories and memories grave and gay!

"Just before the appointed hour a fanfare of trumpets heralded the arrival of the royal party. For a brief moment a breathless pause, then a right, lusty, rousing cheer as the characteristic form of King Edward VII., resplendent in field-marshal uniform, accompanied by Her Majesty the Queen, appeared on the daïs in front of the vast throng.

"The interesting ceremony was not of long duration. The address read to the King by Principal Marshall Lang, the King's reply, and then in sonorous tones, with both arms extended and facing the assembled company, His Majesty concluded with the words, 'I now declare these new buildings open.' Prayer offered up by the Professor of Church History, and the Old Hundredth Psalm sung by all assembled, accompanied by the band of the Royal Scots Greys of Edinburgh Castle, and the great ceremony passed into history.

"It has been said that if you wish to reach an Englishman's heart it must be by way of his stomach, possibly by the pneumogastric nerve. This would seem to have held good at the quatercentenary function in the far North. The great Strathcona banquet held on the evening of the Thursday was from first to last a gigantic success. The arrangement of guests at table so that graduates of the same year should be grouped together was a very happy idea, and the lettering and numbering of the tables with the letter and number of each guest affixed to his name in the list presented with each menu conveniently enabled old friends to recognise each other. The popular thing before the banquet began was to get as many signatures of old friends as could be written on the flyleaf of the magnificently elaborated menu.

"Throughout the week the other items of the entertainment

may just be mentioned:—The procession to the Strathcona Hall and the reception of delegates on the opening day; the conferring of honorary degrees; the reception at the City Art Gallery; the afternoon reception at King's College; the evening reception at Marischal College, to view the interior of the new buildings. Besides these the Aberdeen Medico-Chirurgical Society gave splendid hospitality—a couple of dinners and a most delightful excursion by rail to Dunnottar Castle. There were also class reunion dinners, students' torchlight procession, banquet by the Lord Provost, magistrates and Town Council, students' ball, and students' symposium.

"Perfect weather favoured a week of unsurpassable enjoyment. The quater-centenary was an event of transcendent pleasure and interest. We saw and learned the great advances since 'our time'—close on a quarter of a century—and the present, between the 'then' and 'now.' Clearly Aberdeen is well to the fore in the great struggle for supremacy in the teaching of the Healing Art. Brains and perseverance enhance the possession of those fully-equipped laboratories and spacious and elegant class-rooms. Well may one rejoice that one's Alma Mater has seen such a day of encouragement, and it is no small satisfaction that the celebrations were so much enjoyed by eminent critics from almost every quarter of the globe. Long may the University flourish, and long too may last those handsome grey towers and battlements which will ever perpetuate the illustrious names of Mitchell and Strathcona, and which also will ever bring back to the memory of those who are privileged to revisit their native town the glorious spectacle of that eventful day when a new era of activity sprang upon the celebrated University by the inauguration of the new buildings by His Majesty the King."

Notes on Preparations for the Sick.

Peptones of Beef, Milk and Wheat (Allenbury's).—ALLEN AND HANBURYS, London.—This combination of the albuminoids of beef, milk and wheat forms a nourishing predigested food

which cannot fail to be of use in cases of debility arising from a multitude of causes. It is considered to be an ideal restorative for convalescents, invalids and the aged. It should be given in quantities of one to two tablespoonfuls as often as may be required. It is a clear but dark-coloured, palatable fluid, which gives no precipitate with nitric acid, and only a slight one with picric acid. Being predigested with pancreatic ferments, it should afford an easily assimilated nourishment in cases of gastric and digestive insufficiency from whatever cause.

The V.P. Grape Juice Cordial.—THE VINE PRODUCTS CO., 74 Great Tower Street, London.—This is a non-alcoholic drink prepared from pure grape juice, and containing no injurious preservative. The flavour is excellent, and diluted with aerated water it makes a very palatable and refreshing drink. The sweetness of the fluid is entirely due to grape sugar; no sugar is added. It makes an excellent drink both for summer and for winter use, either cold with ærated water, or diluted with about five times its bulk of hot water. It should be much appreciated by those who do not take the products of the grape after the ordinary fermentation. It will keep well, inasmuch as the high percentage of grape sugar (50 per cent.) prevents fermentation, and the other chemical constituents of this condensed grape extract should have a diuretic effect, and be of service in counteracting dyspepsia and constipation.

Leukion (Evans): Ung. Iodi. Decolorata.—STEELE AND MARSH, Bath.—This new preparation of iodine for external uses is certified by Mr. Gatehouse to contain free iodine to the extent of five per cent. Its especial virtue is due to the fact that when rubbed into the skin the black colour disappears; this fact must make it acceptable to the patient for many purposes where the staining properties of the ordinary iodine preparations are a great disadvantage. It is a black, soft and odourless ointment, which should be readily absorbed through the skin and without giving rise to any irritation, discoloration or desquamation. Its numerous uses locally are as extensive as those of iodine itself, and the only instruction for its use is that it should be rubbed into the part needing it until the colour disappears.

Tabloids.—BURROUGHS, WELLCOME & Co., London.—**Tabloid Xaxa and Dover Powder.**—Each contains: Xaxa, gr. 2½; Dover Powder, gr. 2½. Xaxa is acetyl-salicylic acid, is widely recognised as a valuable anti-rheumatic, antipyretic, antiseptic and analgesic. Its range of usefulness is extended by combination with Dover's Powder. This compound is indicated in influenza, catarrh, and in various febrile and infective

conditions. In such affections it reduces temperature and relieves pain. One to four tabloids may be swallowed with a little water as may be necessary.

Tabloid Trinitrin.—Tabloid Trinitrin should be highly appreciated by the medical profession as a reliable means of administering exact doses of the drug. Reliability of medicament is of the first importance in aortic disease and in attacks of angina pectoris, when prompt action is essential. The portability of the tabloid enables the patient always to have the remedy in his pocket, ready for instant use in case of an attack. Trinitrin is one of the many important medicinal agents in the introduction of which Burroughs, Wellcome & Co. were pioneers.

LIST OF PREPARATIONS.

Tabloid Trinitrin	gr. $\frac{1}{200}$
,, ,, ...	,, $\frac{1}{100}$
,, ,, ...	,, $\frac{1}{50}$
Tabloid Trinitrin Compound:	
℞ Trinitrini	gr. $\frac{1}{100}$
Capsicini	,, $\frac{1}{200}$
Menthol	,, $\frac{1}{100}$
Tabloid Hypodermic Trinitrin ...	gr. $\frac{1}{250}$
,, ,, ,, ...	,, $\frac{1}{100}$

Soloids, for ophthalmic use.—When it is desired to obtain a solution for ophthalmic purposes, the Soloid products will be found valuable. They permit of the ready preparation of small amounts of appropriate strengths, *e.g.* one Soloid Atropine Sulphate gr. 0.545, dissolved in one drachm of distilled water, yields a one per cent. solution. The use of the Soloid products ensures active medicament and fresh reliable solution, prevents waste, and obviates the use of preservatives (which are specially undesirable in eye lotions).

Soloid Atropine Sulphate	gr. 0.545
,, ,, ,, ...	,, 0.272
Cocaine Hydrochlor. ...	,, 1.09
,, Homatropine Hydrobrom. ...	,, 0.545
,, Copper Sulphate	,, 1

Tabloid ophthalmic products readily dissolve when placed on the conjunctiva and quickly exert their effect. They are easily applied and widely employed. The following new strengths are now issued:—

Tabloid Ophthalmic Physostig. Salicyl	gr. $\frac{1}{2000}$
Tabloid Ophthalmic Dionine ...	gm. .005

The Library of the Bristol Medico-Chirurgical Society.

The following donations have been received since the publication of the List in September:

November 30th, 1906.

John Beddoe, M.D. (1) ... ... 5 volumes.
F. H. Edgeworth, M.B. (2) ... ... 9 ,,
L. M. Griffiths (3) ... ... 5 ,,
Middlesex Hospital (4) ... ... 1 volume.
Scholastic Trading Depôt (5) ... ... 2 volumes.
R. Shingleton Smith, M.D. (6) ... ... 1 volume.
The Surgeon-General, United States Army (7) ... 1 ,,

SIXTY-SECOND LIST OF BOOKS.

The titles of books mentioned in previous lists are not repeated.

The figures in brackets refer to the figures after the names of the donors, and show by whom the volumes were presented. The books to which no such figures are attached have either been bought from the Library Fund or received through the *Journal*.

Allbutt and H. D. Rolleston, T. C. [Eds.] *A System of Medicine.* Vol. II. Part I. ... ... [2nd Ed.] 1906
Armstrong, J. ... *Poetical Works* ... ... (3) [1796]
Atkinson, S. B. ... *Golden Rules of Medical Evidence* ... ... [N.D.]
Bland-Sutton and A. E. Giles, J. *Diseases of Women* ... ... 5th Ed. 1906
Bramwell, B. ... *Clinical Studies.* Vol. IV. .. .. (6) 1906
Brown and W. T. Ritchie, J. J. G. *Medical Diagnosis* .. ... 5th Ed. 1906
Brunton, Sir L. ... *Collected Papers on Circulation and Respiration.* (1st Series) 1906
Carter, A. H. ... *Elements of Practical Medicine* ... . 9th Ed. 1906
Catalogue (Index-) of the Library of the Surgeon-General's Office, U.S. Army 2nd Series. Vol. XI. (7) 1906
Cooper, R. H. ... *X-rays in General Practice* 1906
Cornaro, L. ... .. *Sure Methods of attaining a Long and Healthful Life.* (Translated) (2) 1829
Crook, H. E. ... *High Frequency Currents* 1906
Davos as Health Resort 1906
Dixon, W. E. ... *A Manual of Pharmacology* 1906
Dowse, T. S. ... *Lectures on Massage and Electricity* ... ... 6th Ed. 1906

Encyclopedia and Dictionary of Medicine and Surgery. Vol. II. ... ...[1906]

Forel, A. ... ... *Hypnotism.* (Tr. from 5th German Ed. by H. W. Armit) 1906

Freyer, P. J. ... *Enlargement of the Prostate* ... ... 3rd Ed. 1906

Gee, S. ... ... *Auscultation and Percussion* ... ... 5th Ed. 1906

Giles, J. Bland-Sutton and A. E. *Diseases of Women* ... ... 5th Ed. 1906

Handley, J. ... ... *Mechanical Essays on the Animal Oeconomy* ... (3) 1721

Handley, W. S. ... *Cancer of the Breast* 1906

Jones, H. L. ... *Medical Electricity* ... ... 5th Ed. 1906

Marshall, C. F. ... *Syphilology and Venereal Disease* 1906

Martindale and W. W. Westcott, W. H. *The Extra Pharmacopœia* 12th Ed. 1906

Miles, A. Thomson and A. *Manual of Surgery.* Vol. I. ... ... 2nd Ed. 1906

Moore, G. ... ... *Nose and Throat Diseases* ... ... (3) 3rd Ed. [N.D.]

Morrison, J. ... *Medicine no Mystery* ... ... (2) 1829

Moynihan, B. G. A. *Retro-peritoneal Hernia* ... ... 2nd Ed. 1906

Mummery, P. L. ... *The Sigmoidoscope* 1906

Oliver, G. ... ... *Studies in Blood-Pressure* 1906

Orton, H. Walsham and C. H. *Röntgen Rays in Chest Diseases* 1906

Phillips, J. ... ... *Diseases of Women* ... ... 4th Ed. 1906

Pilcher, R. B. ... *A List of Official Chemical Appointments* 1906

Ritchie, J. J. G. Brown and W. T. *Medical Diagnosis* ... ... 5th Ed. 1906

Robinson, M. ... *A Guide to Urine Testing* ... ... 3rd Ed. 1906

Rolleston, T. C. Allbutt and H. D. [Eds.] *A System of Medicine.* Vol. II. Part I. ... ... [2nd Ed.] 1906

Rose, F. ... ... *The Use of Shower Baths in England* 1906

Saundby, R. ... *Treatment of Diseases of the Digestive System* 1906

Savill, T. D. ... *Neurasthenia* ... ... 3rd Ed. 1906

Schlesinger, H. ... *Indications for Operation in Disease of the Internal Organs.* (Tr. by K. W. Monsarrat) 1906

Stacpoole, F. ... *Women's Health* ... ... 2nd Ed. 1906

Stewart, L. ... ... *On Tendency to Disease of Body and Mind* ... ... (2) 1828

Thomson and A. Miles, A. *Manual of Surgery.* Vol. I. ... ... 2nd Ed. 1906

Thomson, St. C. ... *Submucous Excision of Deviations and Spurs of the Nasal Septum* 1906

Védy, L. ... ... *La Fièvre bilieuse hémoglobinurique dans le Bassin du Congo* 1907

Vincent, R. ... ... *Nutritional Disorders of Infancy* 1906

Walsham and C. H. Orton, R. *Röntgen Rays in Chest Diseases* 1906

Westcott, W. H. Martindale and W. W. *The Extra Pharmacopœia* 12th Ed. 1906

Williams, L. ... *Minor Maladies* 1906

X-rays in Diagnosis ... ... [1906]

Yonge, E. S. .. *Polypus of the Nose* 1906

TRANSACTIONS, REPORTS, JOURNALS, &c.

American Journal of Obstetrics, The ... ... Vol. LIII. 1906

American Journal of Ophthalmology, The... ... ... Vol. XXII. 1905

American Journal of the Medical Sciences, The ... ...Vol. CXXXI. 1906

American Laryngological Association, Transactions of the 1906

American Medicine ... ... Vol. XI. 1906
Archives of the Middlesex Hospital ... ... (4) Vol. VIII. 1906
Association of American Physicians, Transactions of the Vol. XX. 1905
Boston Medical and Surgical Journal, The ... ... Vol. CLIV. 1906
Bristol Health Report, 1905 1906
British Gynæcological Journal, The ... ... Vol. XXI. 1905-06
Buffalo Medical Journal ... ... Vol. LXI. 1906
Bulletin de l'Institut international de Bibliographie 1904
Canada Lancet, The ... ... Vol. XXXIX. 1905-06
Cincinnati Lancet-Clinic, The ... ... Vol. XCV. 1906
Clinical Journal, The ... ... Vol. XXVII. 1906
Clinical Society's Transactions ... ... Vol. XXXIX. 1906
Congrès de la Société internationale de Chirurgie, Procès-verbaux du 1er 1906
Contributions from the Department of Neurology, Harvard Medical School ... . Vol. I. 1906
Deutsches Archiv für Geschichte der Medicin ... ... (1) Bds. I.—IV. 1878-81
VI. 1883
Giornale internazionale della Scienze mediche 1905
Glasgow Medical Journal, The ... ... Vol, LXV. 1906
Grant College Medical Society, Transactions of the 1906
Grèce médicale, La 1905
Henry Phipps Institute, 2nd Annual Report of the 1906
Hospital, The .. .. Vol. XXXIX. 1906
Hospitals—Philadelphia Hospital Reports ... ... Vol. VI. 1905
Statistical Tables of St. Bartholomew's Hospital, 1905 ... 1906
Journal of Medical Research, The .. .. Vol. XIV. 1905-06
Journal of Obstetrics and Gynæcology, The ... ... Vol. IX. ... 1906
Journal of the American Medical Association ... ... Vol. XLVI. 1906
Library World, The ... ... Vol. VIII. 1906
Louisville Monthly Journal, The ... ... Vol. XII. 1905-06
Medical Library and Historical Journal ... ... Vol III. 1905
Medical Press and Circular, The ... ... [Vol. CXXXII.] 1906
Medical Record ... ... Vol. LXIX. 1906
Medico-Chirurgical Transactions ... ... Vol. LXXXIX. 1906
Münchener medizinische Wochenschrift ... ... Bd. I für 1906
Obstetrical Transactions... ... ... Vol. XLVII. 1906
Philosophical Transactions, Volume of Reprints from ... ... (3) [c. 1800-44]
Practitioner, The ... ... [Vol. LXXVI.] 1906
Progressive Medicine ... ... Vol. III. 1906
Public Health .. .. Vol. XVIII. 1905–06
Publishers' Circular, The ... ... (5) Vols. LXXXI., 1904, LXXXIV. 1906
St. Louis Medical Review ... ... Vols. LI., 1905, LIII. 1906
Sanitary Record, The ... ... Vol. XXXVII. 1906
Sei-I-Kwai Medical Journal ... ... Vols. VI., 1887, XXIV. 1905
Society of Anæsthetists, Transactions of the ... ...Vol. VII. 1905

MEETINGS OF SOCIETIES.

Bristol Medico-Chirurgical Society.

Annual Meeting, October 10th, 1906.

After a vote of thanks to the retiring President, Mr. John Dacre, had been unanimously passed, Mr. James Taylor took the chair and gave an introductory address (see p. 289). Subsequently cordial thanks were given to Mr. Taylor for his able and interesting address.

The Honorary Secretary, Mr. H. F. Mole, read his annual report. The balance in hand was £147 14s. 6d. on the ordinary account. This was smaller than last year owing to the large grant which had been made to the library.

The Editorial Secretary of the *Journal*, Mr. James Taylor, read his annual report. Mr. C. K. Rudge, the Honorary Librarian of the Medical Library, reported that there were 20,845 volumes in the library, and that 237 current periodicals were regularly received. A complete financial balance sheet was presented. These reports were adopted.

The following officers were chosen for the ensuing year: President-elect—Dr. H. Waldo; Members of Committee—Dr. J. Michell Clarke, Dr. B. M. H. Rogers, Dr. P. Watson Williams, Mr. C. K. Rudge, Dr. James Swain, and Dr. George Parker; and Members of the Library Committee—Mr. C. K. Rudge, Mr. Munro Smith, and Dr. Carey Coombs.

ACCOUNTS OF THE BRISTOL MEDICO-CHIRURGICAL SOCIETY, Session 1905-06.

	£	s.	d.
Carried forward from 1904-05	162	16	2
Members' Subscriptions 1905-06	166	15	9
Interest on Deposit Notes	3	11	5
	£333	3	4

	£	s.	d.
Stamps and sundries ...	2	5	3
Grant to Clerk of Library	5	5	0
Grant to Library	75	0	0
Telephone at Medical School	3	10	0
University College—use of rooms	52	10	0
Lanterns	5	9	0
Printing and Stationery...	3	13	6
Porter at School	1	6	1
To Secretary of *Journal* ...	36	10	0
	£185	8	10
Balance in hand ...	147	14	6
	£333	3	4

"JOURNAL" ACCOUNT, TO OCTOBER, 1906.

	£ s. d.		£ s. d.
Carried forward from 1904-05	11 14 10	Balance in hand ...	13 4 10
From Editorial Secretary	1 4 6		
Interest on Deposit Note	0 5 6		
	£13 4 10		£13 4 10

BRISTOL MEDICAL LIBRARY.

(MEDICO-CHIRURGICAL SOCIETY SECTION.)

Statement of Income and Expenditure for fifteen months (Oct., 1904, to Dec., 1905).

INCOME.	£ s. d.	EXPENDITURE.	£ s. d.
Cash per Hon. Secretary	110 0 0	Fire Insurance (two years)	2 8 0
Sale of Duplicate Books	1 3 6	Books	1 13 0
		Subscriptions	11 7 4
		Binding	24 1 8
		Carriage	0 6 3
		Postages and Sundries ...	1 2 1
			£40 18 4
		Deficit from 1903-04	48 8 3
			£89 6 7
		Balance carried forward	21 16 11
	£111 3 6		£111 3 6

Examined and found correct,

ALFRED JAMES HARRISON
G. MUNRO SMITH } *Auditors.*

November 14th, 1906.

Mr. JAMES TAYLOR, President, in the Chair.

A proposal by Dr. Nixon for Mr. H. F. Mole, "That the May meetings of the Society be discontinued," was not carried.

The suggestion of Dr. Roxburgh that the next May meeting of the Society be held in Weston-super-Mare was approved.

Mr. W. ROGER WILLIAMS read a paper on **Tumours and Tubercle in Monkeys.** The maladies of monkeys were of great interest, because it was among the members of this order that the nearest approach in organisation to mankind was found. Notwithstanding the immense number of these creatures constantly under observation in the zoological collections of Europe, the author knew of only two modern instances of cancer in monkeys, and attempts to transmit experimentally human

cancer to monkeys had invariably failed. It seemed clear that monkeys, like human savages, had very little proclivity to cancer. Their comparative immunity from non-malignant tumour was equally marked, for the author knew of only four modern instances of this kind. With regard to tubercle, it was an ancient belief that monkeys in captivity were very prone to it. Some years ago this was flatly contradicted by Bland-Sutton, but subsequent researches by G. H. J. Campbell, A. J. Harrison, Lydia Robinowstret and others had indubitably established the fact that monkeys in captivity were very prone to tubercle. It accorded with this that these creatures had proved to be very susceptible to experimental inoculation with both the human and bovine forms of tubercle. Thus in monkeys the same inverse relationship between cancer and tubercle was noticeable as in mankind.—Dr. SHINGLETON SMITH alluded to a case of tubercle in a chimpanzee. He had made a *post-mortem* examination of the animal sixteen years ago, had found that advanced tuberculous disease was the cause of death, and that tubercle bacilli were present in many organs.

Dr. J. A. NIXON read a paper on **Sclerodermia and Myositis,** showing three cases illustrating respectively "Sclerodermia *en plaques* with contraction of the tendon of the middle finger of one hand," "Sclerodermia affecting one arm associated with bone changes and tendon contraction," and "Generalised Myositis simulating rheumatoid Arthritis." The occurrence of inflammation of the muscles ending in contractions associated with such changes in the skin as are called "Sclerodermia" was regarded as being by no means very rare: records of at least fifteen such cases were quoted, several of which were verified by autopsy. In these cases no proof was found of any constant changes in the nerves or spinal cord. The probability of sclerodermia and the allied myositis being manifestations of some unknown inflammatory process was insisted upon, not as a novel suggestion but as a reversion to the ideas of the original observer of these conditions, Addison, whose monograph on "Keloid of Alibert and True Keloid" represents a more accurate and critical estimate of the disease than that of any subsequent observer until the researches of Thibierge were made known.—Dr. SWAIN asked if localised morphœa was the same disease in another form as diffuse sclerodermia.—Dr. CHARLES thought the cases shown bore some resemblance to cases of arsenical poisoning, and this suggested the possibility of a nerve lesion being the cause. He asked if thiosinamine had been used with any success in the treatment of sclerodermia.—Dr. EDGEWORTH said he had tried this drug for cirrhosis of the liver and mitral stenosis without effect. Some writers had reported good results from it, *e.g.* in cases of cicatricial stricture of the œsophagus.—Dr. MICHELL CLARKE alluded to the beneficial effect of the drug

if administered hypodermically for Dupuytren's contraction. Dr. KENNETH WILLS had tried X-ray treatment for one case of diffuse sclerodermia without any beneficial result. He had not tried it for morphœa. Mr. ROGER WILLIAMS asked if there was any relationship between the myositis of sclerodermia and myositis ossificans.—The PRESIDENT remarked that he had examined one of the cases shown with the X-rays, and found marked atrophic changes in the phalangeal bones.

Dr. T. A. GREEN read a paper on **Heart Massage in cases of Sudden Syncope**, especially under anæsthetics. Certain physiological experiments were alluded to which had shown that rhythmical compression of the heart could restore the power of pulsation to the hearts of dogs and rabbits after these had been paralysed by asphyxia, chloroform and electric shocks. In these experiments artificial respiration had failed to restore cardiac pulsation. The speaker's first case was that of a boy aged 9, in whom, under chloroform anæsthesia, the heart beats and respiration had suddenly stopped. Artificial respiration and other restorative measures were first tried for about twenty-five minutes without success. The abdomen was therefore opened parallel to the left costal margin and the heart rhythmically compressed with one hand below the diaphragm and the other on the chest wall externally. After five minutes pulsation in the heart returned, and almost immediately spontaneous breathing was re-established. The patient did not recover consciousness. An hour later tonic spasms appeared in the limb and trunk muscles, and recurred at intervals for eight hours. The boy lived twenty hours. The author's second case was one of early diphtheria, in which syncope suddenly supervened in a child of three. The cardiac manipulations were begun about ten minutes after the cessation of pulsation, and were continued for three-quarters of an hour, as in the last case, through the diaphragm, without success. The diaphragm was then incised, and the heart grasped directly with three fingers in the pericardium, and after five minutes of rhythmical compression it began to beat regularly at the rate of forty-eight beats to the minute, and continued to beat for half an hour. Spontaneous breathing, however, could not be induced, and the efforts were at last reluctantly discontinued. Tracheotomy had been performed as one of the first steps for the restoration of the breathing in this case. The speaker then remarked that he had collected from literature thirty-nine cases in which heart massage had been applied for conditions such as those described above. Of these eight had been completely successful, in seven of which the manipulations had been carried out through an incision, and eight other cases had been partially successful. Three operative routes had been used—the trans-thoracic, abdominal trans-diaphragmatic, and the abdomino-sub-diaphragmatic. Of these methods the last was recommended as being quicker, and as having given the

best results. Mr. ROGER WILLIAMS mentioned the *post-mortem* evidence he had seen of rupture of the lungs and ecchymosis of the pericardium resulting from artificial respiration. This proved that the heart could be influenced by external manipulations.

J. LACY FIRTH.
H. F. MOLE, *Hon. Sec.*

Obituary Notices.

JOHN HANCOCKE WATHEN, M.R.C.S., L.R.C.P.

WE have to record the death, at the age of 61, of Mr. John Hancocke Wathen, one of the regular attendants at the meetings of the Bristol Medico-Chirurgical Society, and a man well known in professional and political circles in Bristol. His death took place at his residence, Sea Walls, Stoke Bishop, on October 5th, and was somewhat sudden. He had been in failing health for some two or three years, and took but little exercise; he had been conscious that he had a dilatation of the aorta, proved by an X-ray examination two years ago, and the immediate cause of his death was the bursting of this into the œsophagus.

Born at Marloes Court, Pembrokeshire, he received his early education at Fishguard, and afterwards was at school at Weston near Bath. Later on he studied at University College Hospital and the Royal Orthopædic Hospital, and became a Member of the Royal College of Surgeons in 1865. Two years later he took the degree of L.R.C.P. Edinburgh. His first connection with Bristol was his election as Assistant House Surgeon at the General Hospital, and he was afterwards House Surgeon at the West London Hospital.

In 1867 his father, who was one of the ornaments of the profession, an able country doctor, broke his leg, and the son was recalled to Fishguard and practised for thirteen years with eminent success. Here he performed many operations of general surgery and midwifery, and father and son enjoyed the confidence and friendship of the whole countryside. With the object of rising in the profession and having a larger scope for his powers, he came to Clifton in 1880, and started in private practice, hoping to become attached to one of the public medical institutions. He entered into partnership with Dr. Steele, was partner with him for twelve years, and during this period was Medical Officer to the Clifton Wood Industrial School, when he especially turned his attention to skin diseases, and established a skin dispensary of his own in Park Row.

In 1893 he went into the Town Council, and from that date till two years before his death took a prominent part in municipal affairs as a staunch Conservative. He was a member of the Asylum Visiting Committee and the Sanitary Authority, and was created an alderman in 1897—the only other medical man that we can recollect who achieved the distinction of the aldermanic chair being Mr. Thomas Green, Surgeon to the Infirmary, 1844-1864.

Mr. Wathen was a medical officer in the 1st Gloster Artillery Volunteers, and retired after fifteen years' service with the rank of Surgeon-Major. He was President of the Grateful Society in 1895, and in the same year took an active part in the meeting of the Medical Association in this city. He married a daughter of the late Sir George Edwards.

A correspondent writes:—

"For many years I saw a great deal of Mr. Hancocke Wathen, professionally and otherwise, and though I have little to add to the excellent obituary notice printed above, I should like to write a few words about my old friend. Though we had divergent ideas on many subjects, and frequently discussed the dangerous topic politics, both municipal and imperial, and though Mr. Wathen was a Tory of Tories, and often expressed his convictions in terms that left no doubt as to his views, we never fell out, for he always admitted that his opponent could honestly hold the opposite view to his. He was a Protectionist before many who have taken a more prominent position in the near past in advocating Tariff Reform, but was always ready to listen to—and correct—the views held on the other side. In topics more especially connected with our profession he, as might be expected, had his own views, though perhaps it may be said he did not quite appreciate or assimilate the advances recently made in medicine and surgery. Many of us could not help smiling at his frequent references to his past experiences at Fishguard, where no doubt he gained great experience and did much good work. In one particular he had the advantage over many of us who have not served for many years in a country practice, where dispensing chemists are not known—he had a valuable knowledge of the dispensing of drugs, and many little tips for the elegant preparation of medicines. Further, he had the resource in emergencies that comes from the necessary self-reliance gained in a remote country district.

"Years ago few men more enjoyed seeing his friends at his house than Mr. Wathen. He never entertained largely or on a lavish scale, but he was frequently the host of a small dinner party, and his cheerful and kindly disposition made everyone comfortable and happy.

"It was with genuine regret that many of us saw the gradual decline in his health which separated us from a kindly and good-natured friend."

Dr. J. G. DOUGLAS KERR,
Bath.

By the death of J. G. Douglas Kerr, on November 14th, Bath lost one of her best friends, for there can be no doubt that his personality and the great confidence he instilled in his patients brought to the city of Bath from all quarters, and especially from north of the Tweed, patients of wealth and influence who had never before sought assistance from the Bath waters.

He was educated at Glasgow University, where he had a distinguished career, taking among other honours the gold medal in Surgery. He graduated in the year 1880, and after holding the appointment of house surgeon to the Glasgow Infirmary and a short bout of travelling, he came to Bath as partner to the late Mr. T. G. Stockwell. He soon made up his mind to perfect himself in all matters appertaining to the thermal treatment of disease, and almost immediately he had done so he developed a practice which increased by leaps and bounds. It was in the late autumn of 1905 that a severe attack of influenza played sad havoc with a heart overstrained by his hard-working life, and which probably had been overtaxed during those years in which he spent his holidays in climbing the high mountain peaks of Switzerland and the Austrian Tyrol. Directly he was well enough to travel he started for the Canary Islands, but before he reached the Bay another attack of influenza almost proved fatal. A sojourn in Orotava of several months greatly improved his condition; and after a few days at home he went to Nauheim, where for six weeks he underwent the treatment. A short stay in Switzerland seemed to do him much good, and in the early part of September he came home and resumed some of his work, when it was hoped by his many friends that his heart had rallied from its serious condition. On November 12th another attack of his enemy again laid him low, and in spite of all that human aid could do the end came on November 14th.

About seven years ago he took to yachting as a pastime, and for the first three years cruised in the well-known old racer *The Raven;* but he soon decided to join the ranks of the racing yachtsmen, and commissioned W. Fife to build him the 106-ton yawl *The Valdora*. During her first year she won no less than twenty-three flags in high-class handicap racing, while in her second year she won in record time the International Cup from Dover to Heligoland, given by His Majesty the German Emperor, besides twenty other winning flags. During the year 1905 she was not so successful, being heavily handicapped, but she won the Royal Albert Cup, which she had lost the previous year by only a few seconds.

Dr. Kerr was unmarried, but, in addition to a large circle of friends and patients, has left to mourn his loss a mother, to whom no son was ever more devoted, and to her the profession of Bath extend their sincerest sympathy.

On November 19th he was laid to his last long rest in Bathwick Cemetery, amidst manifestations of regard and deep regret. His methodical and co-ordinate mind, his untiring energy, his whole-hearted interest in those who consulted him soon gained for him their confidence and their appreciation of his opinion and advice, and again and again they visited Bath to seek his aid. But it was something more than mere confidence in his opinion and the value of his advice that had so rapidly increased his large connection and held it together with no uncertain hand. The hundreds of letters now on his table bear overwhelming testimony to the real, affectionate esteem in which he was held by all his patients and disclosed the secret of his great success.

For this wonderful personality and popularity he has had to pay the penalty, and there can be no doubt that the long hours of strenuous work for many months in the year told upon what was never a strong constitution, and his sorrowing relatives, his numerous friends and patients, and the city of Bath mourn the loss of one whose life's record, short as that useful life has been, will ever be held in affectionate remembrance.

> "To esteem, to know, to love, and then to part,
> Makes up life's tale to many a feeling heart."

ALEXANDER WAUGH, L.R.C.P., M.R.C.S., Midsomer Norton.

THE death of Dr. Waugh from pneumonia on December 9th, 1906, at the age of 66, is much to be regretted. He was born at Warminster, was educated at Radley College, and then became a student of the Bristol Medical School, where he obtained gold medals for both surgery and medicine; he was also senior prizeman in practical anatomy, and he obtained the Henry Clarke scholarship. He studied also at St. Bartholomew's Hospital, and obtained the M.R.C.S. in 1863 and the L.R.C.P. in 1864. He commenced practice in Midsomer Norton at the age of 24, and has been identified with every side of the life of the town and district for the last 41 years, where he will be long honoured as much for his public services as for his more strictly professional and private ones. For many years the Medical Officer of Health, he was conspicuous in furthering many improvements effected by the Local Board of the neighbourhood. He was the principal founder of the Paulton Cottage Hospital at a time when there was no sort of provision to meet the inevitable accidents in the coal pits of the district,

and for 35 years was the moving spirit in the maintenance of that useful institution.

Always a constant attendant at the meetings of the Bath and Bristol Branch of the British Medical Association, he was a deservedly popular president in 1880–81, and at a much earlier age than has been usual. He was for 20 years president of the local cricket club, and had shown a keen love of sport from his early days, when he rowed in the Light at Radley and was in the Rugby XV. In later years he was well known as a splendid shot and fisherman, and he knew more of the habits and *habitats* of wild birds than any man in the county. An ideal country gentleman and a keen politician, he was president of the district Conservative Association, also of the district Choral Society, and of late years no public work in the town was ever attempted without his co-operation and cordial support. He was as popular in private life as in his public one, and his consideration and geniality towards all who came into professional relations with him will long be remembered.

R. S. FOWLER, F.R.C.S., Bath.

We regret to find that the long illness of Mr. Richard Sumner Fowler, of Belmont, Bath, terminated in his decease on December 9th. An old student and associate of King's College, London, he became qualified in 1852, and has occupied a distinguished position in the medical life of the city of Bath from that time until his death, at the age of 76. In 1867 he became surgeon to the Bath United Hospital, but resigned that honorary appointment in 1890, and in 1891 he was elected one of the committee, in 1895 a trustee, and on the death of the Rev. E. Handley, in 1904, he became president of the institution. For many years he was secretary, and in 1884 he was elected president of the Bath and Bristol Branch of the British Medical Association, and he acted for a long period as secretary of the branch on the General Council. Mr. Fowler was a most devoted son of the Church of England, and had served the office of churchwarden at St. Paul's for 32 years. In 1859 he was among the first to join the Volunteer movement, being an original member of the Bath Rifles.

Mr. Fowler was held in much esteem by his professional brethren, and he received many presentations in recognition of his invaluable work and services to his fellow-citizens.

Local Medical Notes.

University College, Bristol.—The annual prize distribution of the Faculty of Medicine took place on October 2nd, when Professor Alexander MacAlister, of Cambridge, distributed the prizes and delivered an address. The report of the Faculty showed how successful the students of the Medical Faculty have been in the various examinations, and they also recorded their regret at losing the services of Professor Travers.

The dinner of the past and present students of the College was held in the evening, under the presidency of Dr. F. J. Wethered; the guest of the evening was Professor MacAlister.

The Medical Entrance Scholarship (of the value of £75) has been awarded to Mr. R. F. Bolt.

Students of the College have recently passed the following examinations:—

Conjoint Board of the Royal Colleges of Physicians and Surgeons—*Chemistry and Physics:* L. C. Watkins-Baker. *Biology:* I. R. Hudleston. *Practical Pharmacy:* E. R. Sircom. *Medicine, Surgery:* G. S. Parkinson. *Midwifery:* J. W. J. Willcox, A. E. Iles, E. V. Connellan, P. S. Connellan.

Bristol Royal Infirmary.—The following appointment has been made:—*Casualty Officer:* V. B. Green-Armytage, M.R.C.S., L.R.C.P.

Bristol General Hospital.—The following appointments have been made:—*House Surgeon:* W. J. H. Pinniger, M.B., B.S. Lond. *House Physician:* F. G. Bergin, M.R.C.S., L.R.C.P. *Casualty Officer:* M. R. O. Wilson, M.R.C.S., L.R.C.P. *Assistant House Physician:* J. F. Blackett, M.B., B.S. Lond.

Stanley Hospital, Liverpool.—C. A. Moore, M.B., B.S. Lond., has been appointed House Surgeon.

Southern Hospital, Liverpool.—F. F. Leighton, M.B., B.C. Cantab., has been appointed Resident Pathologist and Registrar.

General Hospital, Birmingham.—J. H. Board, M.R.C.S., L.R.C.P., has been appointed House Surgeon.

Leicester Infirmary.—G. S. Parkinson, M.R.C.S., L.R.C.P., has been appointed Junior House Surgeon.

Newport Hospital.—R. E. Thomas, M.R.C.S., L.R.C.P., has been appointed House Surgeon.

Royal Hospital, Sheffield.—W. W. King, M.R.C.S., L.R.C.P., has been appointed Junior House Surgeon.

Shepton Mallet.—D. T. Price, M.B. Lond., has been appointed Medical Officer to the Board of Guardians.

Visits of Professor Leishman and Dr. Bolton.—On the invitation of Prof. Walker Hall, a number of those interested in research work gathered together at the Bristol Eye Hospital to meet Professor Leishman, on Saturday, October 20th. After an informal reception, some fine specimens illustrating benign and malignant malarial fevers and relapsing fevers were demonstrated and inspected. Among these were some beautifully-stained rosette forms, young rings, and Schüffner's clots. A smear from brain tissue showing a capillary crowded with deeply-staining rosettes called forth universal admiration, as did also a brilliant example of Levaditi's method for staining spirochætes in tissues. Professor Leishman then answered innumerable questions concerning his well-known staining method, and the theories and bypaths of protozoal infections. Later the company, tired of standing, sat in a ring around the Professor, and listened to a ten minutes' talk upon the method and value of inoculation for typhoid fever. Following this more queries were dealt with, and the meeting terminated with a description of the Leishman method for counting white blood corpuscles in stained films.

On Thursday, November 29th, about forty medicals accepted the invitation to meet Dr. Charles Bolton, of University College, London. As in the case of the previous meeting, the Committee of the Bristol Eye Hospital kindly lent their rooms for the purpose. After the introductions, Dr. Bolton gave a most interesting account—illustrated by micro- and lantern slides—of his researches upon "gastro-toxins." Gastro-toxins are cytolytic in nature, and are formed in response to the injection of gastric cells into animals. After the injections, patches of necrosis, hemorrhage and ulceration appear in the mucous membrane of the stomach. The gastro-toxins are hæmolytic, are able to agglutinate cell granules, and produce hyaline changes in gastric cells. They appear to be specific in action.

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